



STS CONSULTANTS, LTD.

Final Closure Report Addendum
Columbus Drive Sidewalk Remediation
North Columbus Drive RV3 Site
200 East Illinois Street
Chicago, Illinois

U. S. Environmental Protection Agency Region 5 77 W. Jackson Boulevard, SE-5J Chicago, Illinois

STS Project No. 1-24418-YM July 28, 2004 Revised August 31, 2004



750 Corporate Woods Parkway Vernon Hills, Illinois 60061 847-279-2500 Phone 847-279-2510 Fax

August 31, 2004

Ms. Verneta Simon, On-Scene Coordinator U. S. Environmental Protection Agency, Region 5 77 W. Jackson Boulevard, SE-5J Chicago, Illinois 60604 via Federal Express

RE: Revised Final Closure Report Addendum for Columbus Drive Sidewalk Remediation, North Columbus Drive RV3 Site, 200 East Illinois Street, Chicago, Illinois - STS Project No. 1-24418-YM

Dear Ms. Simon:

Attached please find five copies of revised Final Closure Report Addendum (Addendum) for the removal of impacted soil beneath the North Columbus Drive sidewalk. The Addendum has been revised to include the USEPA comments dated August 12, 2004. The work was completed in accordance with the Work Plan approved by USEPA on April 11, 2001 and to the limits described in the USEPA Completion letter of August 26, 2002. As reflected in the Addendum, all off-site work required of Grand Pier Center, LLC by the Amended Unilateral Administrative Order (UAO) at Grand Pier is complete, and no further removal activities are necessary.

As a result, STS Consultants (STS), Project Coordinator for this removal action, on behalf of Grand Pier Center, LLC, requests approval by the USEPA of the Addendum, and the issuance by USEPA of a closure completion letter in accordance with the UAO Docket number V-W-96-C-353.

Please contact us with any questions or comments you may have regarding this Addendum.

Regards,

STS CONSULTANTS, LTD.

Steven C. Kornder, Ph.D. Senior Project Geochemist

Douglas J. Hermann

Principal

cc: James Brandt, CM&D

Kris Curran, Ungaretti & Harris LLP Mike Witte, Grand Pier Center Rick Mueller, Johnson & Bell

Mark Krippel, Kerr-McGee, West Chicago

Attachment: Addendum



AFFIDAVIT

Under penalty of law, I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete.

Steven C. Kornder, Ph.D. Senior Project Geochemist

Angust 31, 2004



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ADDENDUM TO THE FINAL CLOSURE REPORT GRAND PIER CENTER NORTH COLUMBUS DRIVE SITE RV3 200 EAST ILLINOIS STREET CHICAGO, ILLINOIS

1.0 INTRODUCTION

This Addendum Report was prepared by STS Consultants, Ltd. (STS) on behalf of Grand Pier Center, LLC. Radiologically-impacted soil was identified on the subject site by USEPA on February 29, 2000, and was subsequently removed under Unilateral Administrative Order (UAO) Docket Number V-W-96-C-353 issued June 6, 1996 and the First Amendment to that Order dated March 29, 2000, in accordance with a Work Plan dated March 20, 2000 and approved by USEPA March 23, 2000. The removal of the on-site portion of the identified compacted material was completed as documented in the Final Closure Report prepared by STS, dated July 2, 2001 and the Completion letter from USEPA dated August 26, 2002.

Residual contamination remained off-site beneath the adjacent sidewalk to the east along North Columbus Drive. This report describes the work conducted between May 17 and May 28, 2004, in accordance with the Work Plan for the Columbus Drive Sidewalk Remediation dated March 9, 2001 (Appendix A) and approved by U. S. Environmental Protection Agency (USEPA) on April 11, 2001 (Appendix B). The objective of this report is to document the removal of the radiologically-impacted soil beneath the western sidewalk in the right-of—way of North Columbus Drive between East Illinois and East Grand to the USEPA cleanup levels (5 picoCuries per gram (pCi/g) total radium above background or 7.1 pCi/g).

1.1 Identification of Facility

The subject site is referred to by USEPA as the Lindsay Light II/North Columbus Drive RV3 site. The property, with a street address of 200 East Illinois Street, Chicago, Illinois, occupies the majority of the block bounded by East Grand Avenue on the north, East Illinois Street on the south, North Columbus Drive on the east, and St. Clair Street on the west. A portion of the northwest corner of this block is

¹ STS (July 2, 2001) Grand Pier Center LLC - Final Closure Report, Lindsay Light II/North Columbus Drive RV3 Site, 200 East Illinois Street, Chicago, Illinois.





excluded from the site. This report covers only the sidewalk right-of-way along the eastern, North Columbus Drive, side of the site.

1.2 Project Background

Construction of the Grand Pier Center involved removal of radiologically-impacted soils present on the site. The removal activities involving the on-site portion of the remediation effort were summarized in a Closure Report submitted to the USEPA on July 2, 2001. In the course of that construction and removal effort, radiologically-impacted soil was identified at several locations beneath the sidewalks surrounding the subject site. In most cases, the detected radiologically-impacted materials were removed by extending the excavations a small distance into the right-of-way, or the concentrations that remained were relatively low, close to the remediation criteria. Those areas are shown on Figure 2.4 in the July 2, 2001 Closure Report. However, along the eastern side of the site beneath the North Columbus Drive sidewalk, the concentrations were sufficiently above the clean-up criteria that the USEPA requested in the project completion letter (USEPA, August 26, 2002 – refer to Appendix B) that the soil be remediated beneath the width of the sidewalk (i.e., be removed to the curb line).



2.0 REMOVAL ACTION

2.1 Sidewalk Area Excavation Background

Previous removal actions on the Grand Pier Center site included the excavation and disposal of radiologically-impacted soil identified during radiological surveys conducted as part of excavation activities for the Grand Pier Center development construction, specifically the basement excavations and installation of foundation elements. Along the North Columbus Drive side of the site, a trench was excavated for the construction of foundation grade beams. Along a portion of that trench, radiologically-impacted soil was encountered that extended beneath the North Columbus Drive sidewalk right-of-way. An initial effort was made to excavate the radiologically-impacted soil under the sidewalk and in the right-of-way. However, radiologically-impacted soil remained in the excavations eastern wall.

Surveys of the excavation wall suggested that the soil immediately beneath the sidewalk to a depth of approximately 3 feet appeared to be below the clean-up criteria. The highest concentrations appeared to lie in a zone from perhaps 3 to 6 feet deep, and along a width of perhaps 15 feet on the eastern wall of the excavation, which parallels North Columbus Drive. Additionally, lower concentrations of impacted soil appeared to extend to the natural soil at approximately 8 feet deep. As a result of the levels of radiation that remained, about 50 feet of plywood sheeting and plastic membrane were used to isolate the impacted soil from the interior of the site. In addition, three steel plates, covering approximately 12 feet horizontally, were placed against the plywood and plastic sheeting to provide additional shielding for construction workers. The steel plates were placed over the area of the highest gamma readings measured during surveying the wall. Those steel plates, the plywood sheeting and plastic membrane were left in place as a marker when the trench excavation was backfilled following construction of the grade beam at that location.

2.2 Sidewalk Area Removal Actions

2.2.1 Pre-Excavation Activities

The pre-excavation activities began on May 17, 2004 and consisted of the following.

- Closure of the sidewalk on the west side of Columbus Drive;
- Closure of the westernmost lane (curb lane) of south-bound Columbus Drive;
- Placement of traffic "jersey barriers";





- Removal and radiological screening of concrete curb and sidewalk (survey results are included in Appendix G);
- Ground surface gamma survey and designation and roping-off of an exclusion zone on the basis
 of the elevated gamma readings.

2.2.2 Radiologically Impacted Soil Removal Actions

On Tuesday, May 18, 2004, the excavation of the radiologically-impacted soils was initiated. Impacted soil was loaded directed into lined shipping containers ("Baker Boxes"). Two containers were loaded May 18; two containers were loaded May 20; two containers were loaded May 21; and one container was loaded May 24. The radiologically impacted material extended to a depth of between 7.5 and 8 feet at which depth native soil was encountered. The dimensions of the final remediated area are approximately 10 by 46 feet as shown on Figure 1.

2.2.3 Pre-Verification and Verification Sampling

Following removal of radiologically-impacted material, STS collected pre-verification samples from that area. If analysis of those samples showed that the cleanup level had been achieved, the USEPA was notified and mobilized to the site to conduct their verification survey of that area. The results of the pre-verification survey sample analyses are included in Appendix D.

An initial verification sample, designated Area A, was collected on Friday May 21, 2004. On Monday May 24, 2004, the USEPA On-Scene Coordinator and STS concurred that Area A should be resampled because the heavy rains over the weekend may have potentially re-contaminated the area via runoff from adjacent areas that were still radiologically-impacted. Because of the decision to resample the area, custody of the Area A sample was not relinquished to the USEPA.

Following the completion of the excavation activities of Monday May 24, the entire exclusion zone area was subdivided into three sections for verification sampling. The final sample areas, designated Areas B, C and D, are shown on the Figure 1 and the site map in Appendix C. The northern boundary of Area C was identical to that of the area initially designated as Area A, while the southern boundary of Area C was located about 3 feet south of that of Area A. Therefore, Area A was completely contained within Area C and subsequently resampled as Area C.



The USEPA verification samples were collected and analyzed for Areas B and C on May 24, 2004, and for Area D on May 25, 2004, and USEPA sign-off was obtained for the areas on those dates. The results of the NUTRANL analysis of the USEPA verification samples are included along with the signed notifications of successful verifications forms in Appendix C.

2.2.4 Post-Excavation Activities

Backfilling of the excavation with gravel, and compaction in preparation for replacement of the sidewalk was completed May 26, 2004. Plywood sheeting was left in-place below the ground surface along the eastern boundary of the exclusion zone to delineate between clean and contaminated areas. This boundary is approximately identical to the curb line of North Columbus Drive. Concrete for the curb and sidewalk was poured May 27, 2004, and on May 28, 2004, the sidewalk barriers were removed and all sidewalk work completed.

2.3 Difficulties Encountered

2.3.1 Electric Utility Duct

An electrical utility duct was present in the area to be excavated. The duct was supposedly abandoned according to the results of the Chicago Department of Transportation's Office of Underground Coordination (OUC) review process. However, an energized street light controller was present in the duct, which required rerouting. This rerouting resulted in no excavation being conducted on May 19, 2004.

2.3.2 Steel Plates Removal

The three steel plates that had been left in the ground when the area was back filled were discovered to have been removed when the excavation extended to that area. It is not known when the plates were removed or by whom. The steel plates were likely separated from the radiologically-impacted soil by the plywood sheeting and plastic membrane which were still present when the area was excavated.





3.0 MATERIAL REMAINING BENEATH NORTH COLUMBUS DRIVE

In accordance with the USEPA work plan approval letter of August 26, 2002 (Appendix B), the objective of the project was to remove radiologically-impacted material beneath the sidewalk right-a-way and not to expand the excavation east beneath North Columbus Drive. Field surveying of the eastern boundary (excavation wall along the curb line) exhibited elevated gamma readings between 1.5 and 8 feet below ground surface (bgs). A soil sample was collected in the area exhibiting the highest observed gamma readings (i.e., 50,000 counts per minute (cpm)) to document the concentration of impacted material remaining in the excavation wall along the curb line (i.e., the eastern excavation boundary). This sample was collected at approximately the center of Area C (refer to Figure 1). Elevated gamma readings were observed along the eastern excavation boundary for approximately 10 feet north and south of the sample. The discrete sample was collected from approximately 3 feet bgs. The sample exhibited a total radium level of 148.53 pCi/g (refer to NUTRANL results in Appendix D – sample ID #933).



4.0 QUANTITIES OF THORIUM-IMPACTED SOIL REMOVED

A total of seven containers containing approximately 100 cubic yards of radiologically-impacted soil were removed from the North Columbus Drive sidewalk right-of-way area during the project. Three samples of the radiologically-impacted soil were collected (i.e., one sample per exclusion zone area) to characterize the total radium levels. The impacted soil results ranged from 85.07 to 463.68 pCi/g total radium (refer to NUTRANL results in Appendix D – sample ID #s 928 – 930). Radiological surveys of the exterior of the shipping containers prior to shipment indicated only one of the seven containers required placarding (refer to Appendix I - manifest number 659-02-0454). The containers were shipped to EnviroCare of Utah for disposal. Copies of the manifests for the seven containers of radiologically-impacted soil are provided in Appendix H.



5.0 ANALYTICAL RESULTS

5.1 Soil Sample Radiological Analytical Results

Soil samples collected during the remediation process were analyzed by Stan A. Huber, Inc. (Huber) at an off-site laboratory by NUTRANL analysis to document the concentrations of the target cleanup radionuclides in the material being excavated. Samples ranged from materials below cleanup levels to materials above the cleanup threshold. The NUTRANL analyses for the samples are presented in Appendix D by laboratory number, which is also equivalent to chronological order.

5.1.1 Pre-Verification Samples

The process of verification of remediation of the exclusion zone involved the collection and analysis of pre-verification samples to confirm the removal had achieved the required cleanup levels. The impacted area (exclusion zone) was divided into sections as the area was remediated via the removal of the impacted soil. The exclusion zone was surveyed in areas not exceeding 100 square meters. The pre-EPA survey and sampling areas (i.e., pre-verification sample areas) were selected by the Field Team Leader (STS) and the Health Physics subcontractor (Huber). The USEPA was notified if the results of the pre-verification samples indicated the area met the cleanup standard. Thereafter, the USEPA mobilized to the site and conducted verification survey of each respective area. The results of the pre-verification samples are included in Appendix D.

5.1.2 USEPA Verification Samples

The USEPA verification areas were the same as the pre-EPA survey and sampling areas (i.e., preverification sample areas). USEPA conducted verification surveys and collected verification samples for three areas in the exclusion zone (i.e., Areas B, C and D. Area A was included in Area C). Each area was surveyed by USEPA, and five sub-samples were collected from the approximate four quarters and the center of the area to create a composite for that area. The five samples forming the composite were then homogenized and five sub-samples were prepared. If the average of these five sub-samples was found to be less than the cleanup threshold of 7.1 pCi/g total radium, a successful verification form was prepared for USEPA signature. The supporting data and form were faxed to USEPA. Upon receipt of the signed form, the area was released for backfilling.



The NUTRANL results of the USEPA verification samples are included with copies of the signed notification of successful verification forms in Appendix C. These same samples were transferred to USEPA under chain-of-custody for analysis at its contract laboratory. The results from analysis of the samples by the contract laboratory are included in Appendix E.

5.1.3 Eastern Excavation Boundary Sample

As discussed in Section 3.0, a discrete soil sample was collected in the area exhibiting the highest observed gamma readings (50,000 cpm). This sample was collected from a depth of 3 feet bgs at approximately the center of the eastern excavation boundary wall of Area C (refer to Figure 1 or the exclusion zone figure in Appendix C). The sample exhibited a total radium level of 148.33 pCi/g (refer to NUTRANL results in Appendix D – sample ID #933).

5.2 Air Monitoring Analytical Results

5.2.1 Site Perimeter Air Monitoring

Perimeter high-volume air monitoring for particulate airborne radioactivity was conducted whenever excavation of radiologically-impacted material was being conducted. The air monitoring samples were analyzed the day after collection and again after four days to allow for the short-lived progeny to decay. The daily and weekly air concentrations were compared to the most limiting effluent concentration limit for thorium-232, which is 4E-15 μ Ci/ml based on 10 CFR 20 Appendix B Table 2 (Effluent Concentration Limits). No exceedances of the exposure limit for the site perimeter were documented for any day of monitoring. Perimeter air monitoring results are provided in Appendix F.

5.2.2 Personal Air Monitoring

Personal air monitoring (PAM) was conducted for all persons working in exclusion zones and those persons involved in the directing of the loading of material into shipping containers. PAM data for radioactivity for both one-day and four-day analyses are included in Appendix F. The data show no exceedances of the allowable exposure limits for this project. It should also be noted that the results of additional personal monitoring (i.e., personnel radiation badges) are discussed in Section 5.4.



5.3 Equipment Release Surveys

Excavating equipment used in the excavation of radiologically-impacted soil was required to be surveyed to confirm it was free of radiological impacts prior to being released from the site. This equipment was limited to the excavation bucket used to excavate and load the impacted material. To confirm the absence of impacts, the treads and other portions of the equipment where soil had accumulated were surveyed for contamination using field gamma survey instruments. For the excavator buckets, wipes were also taken in accordance with STS SOP 345, and alpha counts were made to confirm the absence of contamination. Limits listed in SOP 345 are currently those of 32 IAC 340 Appendix A (33 dpm/100 cm²). However, in practice with "as low as reasonably achievable" (ALARA), the most restrictive federal level of 20 dpm/100 cm² for removable contamination from Table 1 of the Nuclear Regulatory Commission's Regulatory Guide 1.86 was used for equipment release. The alpha count survey results were well below this most restrictive level and are included in Appendix G.

5.4 Personnel Radiation Badge Results

Personnel on site operating in the exclusion zones conducting gamma surveys or sampling, personnel assisting with the loading of the containers, and other persons potentially in contact with radiologically-impacted material were monitored with Optically Stimulated Luminesence (OSL) film badges during the project. The allowable exposure limit for occupation radiation workers is 5000 mrem/yr. No exceedances of the allowable exposures were measured for personnel on this project. The results of the film badge monitoring are presented in Appendix H.



6.0 CONCLUSION

The work conducted to remove the radiologically-impacted soil beneath the western sidewalk in the right-of-way of North Columbus Drive between East Illinois and East Grand was completed in general accordance with the Work Plan (Appendix A) approved by USEPA on April 11, 2001 (Appendix B) and to the limits described in the USEPA Completion Letter of August 26, 2002 (Appendix B). The work completed at the site included obtaining signoff from the USEPA on notifications of successful verification for the excavation floor and the southern, western and northern boundaries of the excavated area. Thus, this Addendum and the work described herein, fulfill the off-site work requirement of the Amended UAO as indicated in the USEPA Completion Letter of August 26, 2002. As a result, STS Consultants (STS), Project Coordinator for this removal action, on behalf of Grand Pier Center, LLC, requests approval by the USEPA of the Addendum, and the issuance by USEPA of a closure completion letter in accordance with the UAO Docket number V-W-96-C-353.



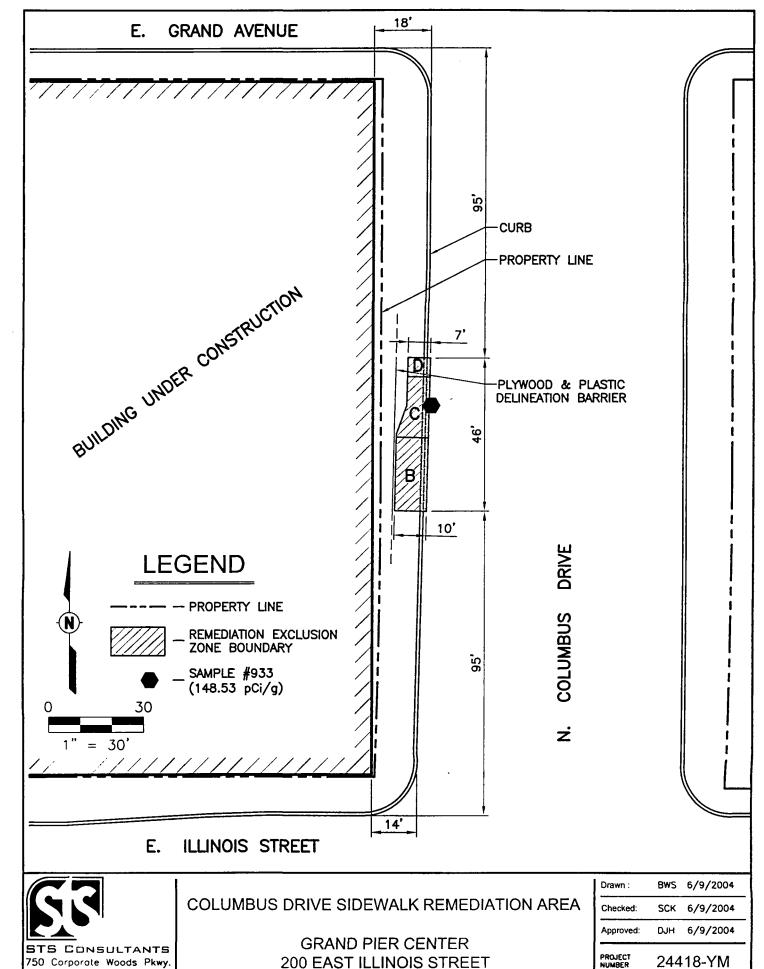


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Vernon Hills, IL 847-279-2500

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Appendix





APPENDIX A

Columbus Drive Sidewalk Remediation Work Plan

Grand Pier Center LLC 401 N. Michigan Ave Chicago, Illinois 60611

Columbus Drive Sidewalk RemediationWork Plan

> Grand Pier Center Chicago, Illinois

> > 1-24418-XK

March 9, 2001







March 9, 2001

Ms. Verneta Simon, On-Scene Coordinator Mr. Fred Micke, On-Scene Coordinator U. S. Environmental Protection Agency Region 5 77 W. Jackson Blvd., SE-5J Chicago, Illinois 60604

RE: Work Plan for Columbus Drive Sidewalk Remediation - STS Project No. 1-24418-XK

Dear Ms. Simon and Mr. Micke:

Attached please find the Work Plan for the removal of the impacted soil beneath the Columbus Drive sidewalk. This plan presents our proposed approach to this removal, as discussed in the meeting at USEPA offices on February 21, 2001.

Please contact us with any questions or comments you may have regarding this plan.

Regards,

STS CONSULTANTS, LTD.

Richard G. Berggreen, C.P.G.

Principal Geologist

cc: Michael Witte, Grand Pier Center LLC
Rick Mueller, Johnson & Bell
Thomas Dimond, Mayer, Brown & Platt
John Curtiss, AIG
Harold Holmberg, Kerr-McGee, Oklahoma City
Mark Krippel, Kerr-McGee, West Chicago
Vincent Oleszkiewicz, Baker & McKenzie

GRAND PIER CENTER COLUMBUS DRIVE SIDEWALK REMEDIATION WORK PLAN

1.0 INTRODUCTION

Construction of the Grand Pier Center involved removal of thorium-impacted soils present on the site. In the course of the construction and removal, impacted soil was identified at several locations beneath the sidewalks surrounding the subject site. The horizontal extent of the impacted soils into and beneath the rights-of-way was not evident based on surface scans. In most cases, the detected and measured concentrations were removed by extending the excavations some small distance into the right-of-way, or the concentrations that remained were relatively low, close to the remediation criteria. In those cases, the locations have been noted and any further work in those areas will be performed acknowledging the potential to encounter these soils.

At one location along the eastern side of the site, beneath the Columbus Drive sidewalk, the concentrations are sufficiently above the clean-up criteria that the U. S. Environmental Protection Agency (USEPA) specified that the soil would be removed to the curb line, remediating beneath the width of the sidewalk. There are several constraints to removing the material to the curb line, including utilities which are located beneath the sidewalk and the adjacent street, concerns with the stability of the excavation adjacent to the street, and restrictions on street closings which would be required for this work.

This Work Plan presents the proposed method for this removal, including consideration of the constraints and the options for meeting the objective of removing the higher levels of impacted soil from beneath the right-of-way.

2.0 REMOVAL SCOPE OF WORK

The previous excavations on the Grand Pier Center site were made for two purposes, to remove the impacted soil encountered, and to excavate foundation elements, including along the Columbus Drive side of the site, a trench for the construction of the foundation grade beams. At this location, an effort was made to excavate the impacted soil under the sidewalk, including excavation into portions of the right-of-way an estimated 6 feet (see Figure 1). However, relatively high levels of impacted soil remained in the excavation wall. As a result of the levels of radiation that remained, steel plates were placed against the trench wall to provide the construction workers with shielding, in addition to the plywood sheeting and plastic membrane that was used to isolate the impacted soil. Those plates were placed over the highest levels measured in surveying the wall. Those plates were left in place when the excavation was backfilled after the grade beams were constructed. The locations of those plates are shown on Figure 1.

The survey of the wall identified that the soil from immediately beneath the sidewalk to a depth of approximately 3 feet was below the clean-up criteria. This may be attributed to the placement of clean backfill following the installation of the City of Chicago electric conduit beneath the sidewalk at a depth of approximately 3.5 feet. This apparently clean material and the position of the City of Chicago electric conduit are shown on the cross section on Figure 1.

In that the objective is to remove the impacted soils that are substantially above the cleanup criteria, several options are available for managing the removal. The highest levels of impacted soil lie in a zone from perhaps 3 feet deep to perhaps 6 feet deep, and along a width of perhaps 15 feet. Lower concentrations of impacted soil extend to the natural soil at approximately 8 feet deep. Additionally, the width of the elevated concentrations is limited to the areas shielded by the steel plates, with lower concentrations laterally along the wall of the former excavation to the north and south.

Grand Pier Center STS Project No. 1-24418-XK March 9, 2001

The City of Chicago electric conduit is proposed to be left in place. Excavation around the line can be done by hand if necessary, as long as the exposed length is kept to a minimum. It may be necessary to provide temporary support while being excavated. Flowable fill may be used as backfill to support the conduit following the removal effort. It will be necessary to obtain an opinion from the Chicago Department of Transportation or the proper agency with jurisdiction as to the length which can be exposed without support, the type of support required, and the required backfill material. Inquiries in this regard are currently being made.

A limitation on the length of trench which can be exposed at one time will also contribute to constraining the stability concerns with regard to the adjacent street. With regard to the street, however, it is proposed to slope the excavation embankment from the street toward the site. This slope provides for support and buttressing the street. Standard excavation specifications are anticipated to require 1.5 horizontal to 1 vertical slopes. It is proposed to seek authorization to steepen these slopes to as steep as 1 to 1, with provision for the following measures to minimize slope instability issues. The length of exposed trench will be limited to a maximum of some design length, say 8 feet (to be determined following engineering review by the City of Chicago). No persons will be permitted in the excavation with over-steepened slopes. The duration of time during which the excavation is open will be limited by requesting that USEPA personnel be on-site to confirm adequate excavation, as the excavation proceeds. The need for on-site USEPA presence is based on safety and stability issue concerns. Scheduling USEPA personnel will be resolved before excavation begins. The excavated section will be backfilled with clean fill before the next section is excavated. Any indications of pending instability such as sloughing of the walls or developing cracks in the adjacent street or sidewalk will be cause for immediate backfill to limit potential movements. Adequate backfill materials will be staged near the excavation to respond as soon as feasible.

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Grand Pier Center STS Project No. 1-24418-XK March 9, 2001

Figure 1 shows a plan view of the current conditions and a cross section of two options for excavation. It is recommended that the option involving some minor excavation encroachment into the curb lane of Columbus Drive, perhaps 2 feet outside the curb, be pursued. The slope of the excavation would start beneath the pavement and subgrade for Columbus Drive, perhaps 18 inches below street grade. The slope in the limited excavations would be 1 vertical to 1 horizontal. This would allow for the removal of all except a small wedge of soil beneath the outside (street-side) edge of the sidewalk right-ofway. It is possible, in that the distribution of the elevated concentrations of impacted soil is not known, that this excavation scenario will be sufficient to remove all impacted material, or at least will remove material to the low levels which have been allowed to remain elsewhere.

With regard to the lower concentrations of impacted soils to the north and south of the portion of the sidewalk with the elevated readings, the removal effort is proposed to be limited. In compliance with the allowed width of excavation permitted for stability, only those soils immediately adjacent to the high readings will be removed, or the excavation will proceed to apparently clean soil, whichever is less. This is likely to limit the entire excavated length in a north-south direction to perhaps 20 to 30 to feet. This is a majority of the approximately 30 to 40 foot length of the impacted zone which was removed in this area. Alternatively, if the excavation can be limited to only the high concentrations behind the steel sheets, the stability issues and excavated volumes can be reduced and more confidently managed. In considering the need to obtain approval for the proposed excavation from the City of Chicago Department of Transportation, it is recommended that the less material which is proposed to be excavated and the sooner the work can be backfilled, the more likely the work can be approved.

At a minimum, the western curb lane of Columbus Drive will need to be closed. The sidewalk will need to be closed. It may be possible to route the sidewalk traffic onto Columbus Drive under a canopy occupying a portion of the curb lane.

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Grand Pier Center STS Project No. 1-24418-XK March 9, 2001

The anticipated volume of impacted material is on the order of 30 to 35 cubic yards. This estimate is based on 25 feet length, north to south, a thickness of 5 feet from 3 to 8 feet deep, and an average width of 7 feet from the current excavation limit at the steel plates to the sloping back of the excavation. It is anticipated that the thorium-impacted soil will be loaded directly into shipping containers for transport and disposal. No temporary storage is anticipated for the excavated, impacted soil. The apparently clean overburden will be staged adjacent to the excavation and tested before being released for use as clean backfill.

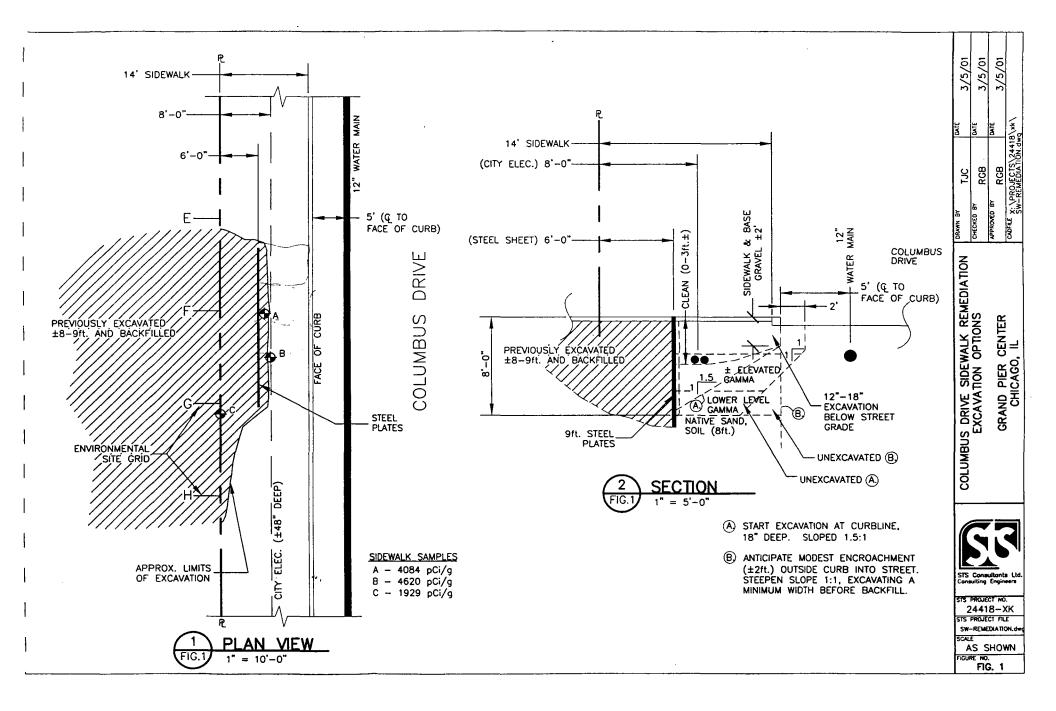
3.0 SCHEDULE

Permits for the excavation and for the lane closing will be required before beginning this work. Board of Underground review and approval will involve an anticipated 60 days. Following receipt of permits, delivery of the containers will be scheduled, which may take 2 weeks to procure. Coordination with the permit review process may allow containers to be ordered during the permit review.

The actual date for the work will depend on when the lane can be closed. The City of Chicago Department of Transportation will dictate when the lane(s) can be closed. It is recognized that a moratorium on street closings will likely be set for late June-early July for the Taste of Chicago festival. It is anticipated the actual excavation work will be completed in one or two days.

Following the completion of this removal, a summary report will be prepared as an addendum to the North Columbus RV3 report.

5





APPENDIX B

Correspondence with USEPA



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 77 WEST JACKSON BOULEVARD CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

SE-5J

April 11, 2001

VIA FACSIMILE AND U.S. MAIL

Mr. Richard G. Berggreen, C.P.G. STS Consultants, Ltd. 750 Corporate Woods Parkway Vernon Hills, IL 60061-3153

RE: Columbus Drive Sidewalk Remediation Workplan

Dear Mr. Berggreen:

The U.S. Environmental Protection Agency (USEPA) has reviewed the Workplan for the Columbus Drive Sidewalk Remediation dated March 9, 2001. USEPA hereby approves the aforementioned Workplan.

Work at the Columbus Drive sidewalk can begin immediately. However, USEPA requests that the work schedule for this project be given to USEPA, as soon as possible, so that we can assure proper coverage for this project. In addition, if radioactive material is left "in-place" at the completion of this project, USEPA will require that plastic sheeting be used to delineate the radioactive material from the backfill.

If you have questions regarding this letter, please contact me, as soon as possible, at (312) 886-5123 or contact Verneta Simon, On-Scene Coordinator, at (312) 886-3601, or Larry Jensen, Senior Health Physicist at (312) 886-5026.

Sincerely.

Fredrick a. Micke Fredrick A. Micke, P.E.

On-Scene Coordinator ERB Section #3



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 77 WEST JACKSON BOULEVARD CHICAGO, IL 60604-3590

August 26, 2002

REPLY TO THE ATTENTION OF SE-5J

VIA FACSIMILE AND U.S. MAIL

Mr. Richard Berggreen, C.P.G. STS Consultants, Ltd. 750 Corporate Woods Parkway Vernon Hills, Illinois 60061-3153

Re: Completion of On-Site Work under Order No. V-W-96-C-353 for the Lindsay Light II Site, RV3 North Columbus Drive Site (200 East Illinois Street), Chicago, Cook County, Illinois As Issued June 6, 1996 and Amended on March 29, 2000.

Dear Mr. Berggreen:

The United States Environmental Protection Agency issued a Unilateral Administrative Order No. V-W-96-C-353 (UAO) on June 6, 1996 to Kerr-McGee Chemical, Corporation and The Chicago Dock & Canal Trust requiring removal of thorium contamination from the Lindsay Light If Site located at 316 East Illinois Street, Chicago, Cook County, Illinois. On March 29, 2000, U.S. EPA amended the UAO (Amended UAO) to also include the property located across Columbus Drive bearing the Cook County's Assessor's Parcel Number 17 10 212 019 (the SIte or Grand Pier Site). This Completion Letter covers only the on-site portion of the Grand Pier Site located at 200 East Illinois Street as described in the Amended UAO issued March 29, 2000. For the purposes of this Notice of Completion, "on-site" is defined as the real property identified as Cook County's Assessor's Parcel Number 17 10 212 019 that is bounded by, but does not include any remaining thorium contamination underlying the adjacent sidewalks or street rightof-ways of East Illinois Street, North Columbus Drive, East Grand Avenue, and St. Clair Street. This Completion Letter concludes that upon receipt of bound final report which incorporate all editorial changes requested in a separate letter dated June 14, 2002, that all on-site work required by the Amended UAO at Grand Pier will be complete and no further on-site removal activities are necessary. This Completion letter also determines that all off-site work required by the Amended UAO has not been completed. Specifically, the removal of thorium contamination beneath the Columbus Drive sidewalk right-of-way as described in your U.S. EPA-approved workplan dated April 11, 2001, which is required by Section V, 3. Paragraph g. of the UAO and Amended UAO. Paragraph g. requires "...off-site surveying and sampling as necessary and, at a minimum, implement 40 CFR 192, if deemed necessary should contamination be discovered beyond current site boundaries."

The June 6, 1996 UAO required removal of thorium contamination from the 316 East Illinois Street site that the Chicago Dock & Canal Trust identified in an extent of contamination study

Chicago Dock performed pursuant to an Administrative Order by Consent, No. V-W-94-C-22 dated January 27, 1994. The UAO also required Chicago Dock & Canal Trust to excavate and dispose of all characterized wastes identified and generated during removal activities. After the discovery of elevated levels of radioactive materials at the Grand Pier site on February 29, 2000 the Amended UAO was issued to Kerr-McGee Chemical Corporation, River East L.L.C. (the former Chicago Dock & Canal Trust), and Grand Pier Center L.L.C..

The UAO and the Amended UAO required the following work:

- 1) Develop and implement site health, safety and security measures.
- 2) Develop and implement air monitoring program.
- 3) Remove contamination until the cleanup criterion of 5 picoCuries per gram total radium (radium-226 + radium-228) over background is achieved. This cleanup criterion will be met in each 15 centimeter layer below the surface. Averaging over areas up to 100 square meters will be allowed, but only after reasonable efforts have been made to achieve levels As Low As Reasonably Achievable (ALARA). It is not U.S. EPA's intent to leave any elevated areas of contamination if at all possible.
- 5) Transport and dispose of all characterized or identified hazardous substances, pollutants, wastes or contaminants at a RCRA/CERCLA/IDNS approved disposal facility in accordance with the U.S. EPA off-site policy.
- 6) Conduct off-site surveying and sampling as necessary and, at a minimum, implement 40 CFR 192, if deemed necessary should contamination be discovered beyond current site boundaries.
- 7) Backfill all excavations with suitable material, and if soil, test borrow source for radioactivity and other pertinent characteristics in 40 CFR Part 261.

Pursuant to the Amended UAO, Grand Pier Center L.L.C. through their consultant, STS Consultants Ltd., submitted a workplan on March 20, 2000. U.S. EPA approved the workplan, on March 23, 2000. In total, 10,606.4 tons of thorium impacted soil were shipped to Envirocare in Clive, Utah. On July 3, 2001, STS Consultants Ltd. submitted a final report on their activities at the site, as required by the Amended UAO.

U.S. EPA's Superfund Division performed oversight of the PRP's activities at this site. Superfund Division reviewed the final report.

This notice of completion in no way releases River East, L.L,C. and Kerr-McGee Chemical L.L.C, or Grand Pier Center L.L.C. from any potential future obligations to perform additional work to address the same or other conditions at the site, at the 341 East Ohio (North McClurg Court) Site, or at off-site locations associated with the Lindsay Light II facility. Similarly, this

notice of completion does not release River East, L.L.C. Kerr-McGee, Chemical L.L,C., and Grand Pier Center L.L.C. from any recordkeeping, payment, penalties for any violation of the Order or other obligations under the Order that extend beyond the date of this notice.

Please contact me at (312) 886-5123 or Mary Fulghum, Associate Regional Counsel at (312) 886-4683 if you have any questions concerning this letter.

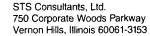
Sincerely,

Fredrick a. Micke

Fredrick A. Micke, P.E.

On-Scene Coordinator, ERB #3

cc: Mark Kripple, Kerr-McGee J.T. Smith, Covington & Burling Vincent S. Oleszkiewicz, Baker and McKenzie Fredrick Moeller, Johnson & Bell



voice 847-279-2500 fax 847-279-2510

web www.stsconsultants.com



May 4, 2004

Ms. Verneta Simon, On-Scene Coordinator U. S. Environmental Protection Agency Region 5 77 W. Jackson Blvd., SE-5J Chicago, Illinois 60604

RE:

Notification of Intent to Conduct Remedial Activities, Grand Pier Center - Columbus Drive Sidewalk Remediation - STS Project No. 1-24418-YM

Dear Ms. Simon:

This letter provides written notification that remediation of the radiologically-impacted soils beneath the Columbus Drive sidewalk at the above referenced site is anticipated to be initiated on May 17, 2004 pending receipt of all city permits. As indicated in the Work Plan¹, the removal of the radiologically-impacted soil is anticipated to be accomplished in one week with restoration of the sidewalk and curb completed following the removal activities. It is also worth noting that during the remediation phase, STS Consultants, Ltd. (STS) anticipates that verification surveys may be necessary on a daily basis due to the potential requirement for daily backfilling of the excavation. STS will be in contact with you in the near future to verify your receipt of this letter and determine if the USEPA has any additional information requests.

In the meantime, please feel free to contact us regarding the project and associated activities.

Regards,

STS CONSULTANTS, LTD.

Steven C. Kornder, Ph.D. Senior Project Geochemist

Thomas Jakubczyk, R.A. Associate Architect

cc:

J. Brandt, CM&D

K. Curran, Ungaretti & Harris LLP

C. Staley, Bovis

J.T. Smith, Covington & Burling

F. Mueller, Johnson & Bell, Ltd.

¹ Grand Pier Center - Columbus Drive Sidewalk Remediation Work Plan, STS March 2001.



APPENDIX C

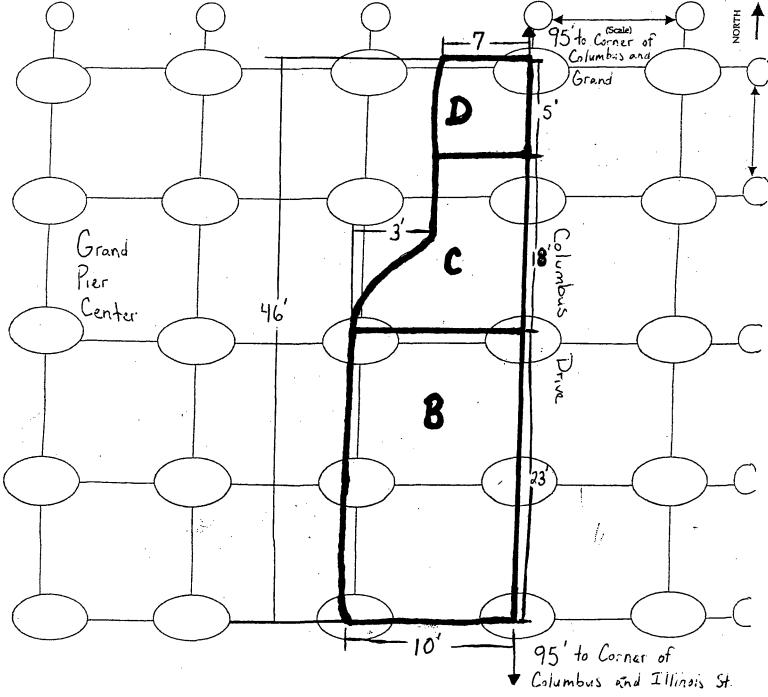
USEPA Signed Notification of Successful Verification Sampling Forms

Site Map



RADIATION SURVEY FORM

	Project # 24418 yw	Project	Name Columbus Drive Page	of
STS Consultants,	Ltd.	٠.		
Date	5/25/04		Technician Tim OBrien	
Inst. Model _			Serial No	·
Probe Type:	1'x1"Nal / 2"x2" Nal Shielded / Not Shielded		Lift Elevation	
Background_		cpm	Action Level	_ cpm
Write grid de	esignations in circles. Record ections (if required). Shade a	highest co reas of elev	unts for grid in cpm. Record 30 secon vated counts and record max cpm.	nd counts
		\bigcirc	7 - 1 95 to Corner of	



AL .TEL Brait Lessons 527:

FORM 223-1 NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

rea Identification:		<u> </u>
ate of Verification Survey:	5/24/04	
ime of Verification Survey	8:00	em/pm
he above-described excavation was su urvey indicated that all soils have been riteria.		
ocuments pertaining to this survey are a	ttached for review and appro	val by the U.S. EPA
gned: Alexander Lecensor	5/5¢ /ac/	Date
DUMARIAIS F. GUERR		(Print Name)
Tita Coordinator		(Print Title)
Solutio	ons through Science & Engineering	
Solution	679 Consultants, Ltd. ons through Science & Engineering	
attached Verification Survey docume	ents were reviewed by U.S	EPA, Region V
attached Verification Survey docume 5/24/04 The rid as contained in the UAO, have been	e results of this survey indica	. EPA, Region V te that the verificat
The	e results of this survey indican n met.	te that the verificat
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Nutrani Gamma Spec Report- Grand Pier: Columbus Drive Sidewalk

Exclusion Zone Confirmatory Samples for May 24, 2004

Sample	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Ra-226	Total Radium	Total Radium
ID	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
947	5/24/04	EPA	GPCD (B) EPA #1	35.5	-0.86	2.16	2.83	0.68	0.48	0.88	3.31	1.112115102
948	5/24/04	EPA	GPCD (B) EPA #2	35.3	0.69	1.78	0.92	0.57	2.26	0.76	3.18	0.95
949	5/24/04	EPA	GPCD (B) EPA #3	34.2	-2.6	2.17	1.7	0.69	1.35	0.93	3.05	1.158015544
950	5/24/04	EPA	GPCD (B) EPA #4	33.4	0.15	2.13	1.37	0.67	1.76	0.9	3.13	1.12200713
951	5/24/04	EPA	GPCD (B) EPA #5	34.6	1.73	2.5	1.07	0.78	2.26	1.05	3.33	1.308013761
Averag	e Total I	Radium	(Th-232+Ra-226) Con	centration	on for :		GPCD	(B) EPA	\;	3.20	pCi/g	The second secon

FORM 223-1 NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

LAKESHORE EAST

Area Identification:	<u>"C"</u>	Cohate Dr. Sidewolf
Date of Verification Survey:	5/04/04	
Time of Verification Survey	8:30	(a)d/pm
The above-described excavation survey indicated that all soils in Criteria.	on was surveyed at the time have been removed as req	ne and date indicated above. uired by the Site Removal Ac
Documents pertaining to this su	urvey are attached for review	v and approval by the U.S. EPA
Signed:	· · · · · · · · · · · · · · · · · · ·	/es/ Date
Dunerar of Sierra	<u> </u>	Date
. DUMANAIS F. GO		(Print Name)
Dite Coordinator		(Print Title)
he attached Verification Surv	ey documents were raviev	ved by U.S. EPA, Region V
5124104	The results of this s	ved by U.S. EPA, Région V urvey indicate that the verificat
iteria as contained in the UAO,	, have been met.	
uthorization is hereby granted t	to commence backfill and re	storation work at this excavation
gned;		
Veeneta Simon		Date 5/24/64
Veeneta Simon		(Print Name)
On-Scene Coredinate	1.0	(Print Title)
M-SEENE COREMINAN	/ * ¿	(Fillia rate)
	772	(Film Time)
r U.S. EPA Region V		(Film Time)

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Page 4

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Nutrani Gamma Spec Report- Grand Pier: Columbus Drive Sidewalk

Exclusion Zone Confirmatory Samples for May 24, 2004

ample	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Th-282	Ra-226	Ra-226	Total Radium	Total Radium
aı	Date	Group		1 1	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
952	5/24/04	EPA	GPCD (C) EPA #1	31.6	-0.45	2.02	1.58	0.64	0.36	0.85	1.94	
953	5/24/04	EPA	GPCD (C) EPA #2	31.3	-1.15	2.58	0.74	0.81	2.07	1.11	2.81	1.37411789
954	5/24/04	EPA	GPCD (C) EPA #3	31.3	0.32	2.16	0.87	0.67	1.23	0.9	2.1	1.1220071
955	5/24/04	EPA	GPCD (C) EPA #4	32.6	-1.81	1.84	0.23	0.58	1,85	0.81	2.08	0.99824294
956	5/24/04	EPÄ	GPCD (C) EPA #5	32.5	0.65	2.58	2.14	0.79	0.11	1.01	2.25	1.28226362
ner Bereitt i vertilen geger 18	Ber to a street of the street	F AND CONTRACTOR PROPERTY OF STATES	riky roko, y plaso do mysy po 19 maja iliku pa ny pagimba sommunik provi ikipum bi kon noro a noda. 1967 maja I	medican managem concern to d	li and 9 metric artifectoristics (PACFALIS) artifets a quite	gariente de la serie e como	Mary and Street, of the said of	egade school a live visit der vig 1900 bet 144, 145, 145, 145	-Per Har (No to Plan and Andreas) Species	The state of a particular state of the state	Поскої Унгасиција в Унушена и при зарадни поскорот поского ј	Estantia tindandria anti-aria di Albard di Albard
Averac	latoT ar	Radium	n (Th-232+Ra-226) Cor	centrati	on for ·		GPCD	(C) EPA	7 ·	2.24	pCi/a	

FORM 223-1 NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Area Identification:	u Columbus Doic	or Grand Pien
Date of Verification Survey:	105/04	·
Time of Verification Survey		aff/pm
The above-described excavation was survey indicated that all soils have be Criteria.		
Documents pertaining to this survey ar	e attached for review and app	roval by the U.S. EPA.
Signed: Sig	5/25/04	Date
DonAs F. GUERRIER		(Print Name)
Tile Coordinator	<u></u>	(Print Title)
E R	STS Consultants, Ltd.	
The attached Verification Survey documents of the UAO, have been supported by the UAO.	The results of this survey indi	.S. EPA, Region V on cate that the verification
Authorization is hereby granted to comm	nence backfill and restoration	work at this excavation.
Signed:		
Verrish Sime		_ Date <u>5 /25/04</u> /
Veneta Simon		(Print Name)
On-Scene Condinator		(Print Title)
For U.S. EPA Region V		

Page 4

Nutrani Gamma Spec Report- Grand Pier: Columbus Drive Sidewalk

Exclusion Zone Confirmatory Samples for May 25, 2004

Sample	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Ra-226	Total Radium	Total Radium
_ID	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
960	5/25/04	EPA	S2683 GPCD (D) EPA #1	29.3	4.94	2.95	0.73	0.87	0.4	1.17	1.13	1.458012346
961	5/25/04	EPA	S2684 GPCD (D) EPA #2	28.5	-0.58	1.62	0.41	0.51	1.33	0.7	1.74	0.866083137
962	5/25/04	EPA	S2685 GPCD (D) EPA #3	28.9	-2.58	1.96	1.44	0.63	-0.43	0.81	1.01	1.026157883
963	5/25/04	EPA	S2686 GPCD (D) EPA #4	30.3	-0.32	2.28	0.06	0.73	1.06	0.98	1.12	1.222006547
964	5/25/04	EPA	S2687 GPCD (D) EPA #5	30.8	0.31	1.78	0.79	0.56	0.34	0.74	1.13	0.928008621
And Control of the State of the	be a separate of the separate	**************************************	مهمته میرد ، داد محمد (۱۰ - ۱۳ - ۱۳ - ۱۳ - ۱۳ - ۱۳ - ۱۳ - ۱۳ -	The same water the same of	terretoria accepto de la cale de la companya de la	gar faste program transcent training	Process Constant of the Consta		Pendilitra e i remenue futeroni, mini vi	Brown or was appearably and forest con-	gamente materiorian i Marentama man incimitar a campar dei Marini dei	B den, og bellgder, hvise fyllige myrelindig pri oleghagrifige æfer
Averaç	je Total l	Radium	n (Th-232+Ra-226) Con	centrati	on for :		GPCD	(D) EPA	۸:	1.23	pCi/g	



APPENDIX D

Radiological Soil Sample Analyses - NUTRANL

Nutra	nl Gam	ma Spec	Report C	rand	Pier Pro	ject: Col	umbu	s Drive	Sidew	alk		
							[. <u></u>					
	Complet	e Report of	Samples Analyze		May 18, 2	004 - May 2						
Sample	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Ra-226	Total Radium	Total Radium
ID	Date	Group			Activity_	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
924	5/18/2004	background	bkg051804	7.5	-0.44	2.41						1.30667517
		soil standard	soilstd051804	36.9	0	2.1		1				1.032327467
	arry arrest errors to	background	bkg051904	7.5	-2.21	1,41						0.7800641
927		soil standard	soilstd051904	36.9	0.58	3.88	6.5	1.2	-0.09	1.47	6.41	1.897603752
		GP exclusion	00050 0000 57"4	07.0	44.00	7.04			~~~			 -
928	5/19/2004		S2659 GPCD EZ#1	27.6	-11.98	7.01	52.1	2.11	32.97	2.71	85.07	3.434559652
000		GP exclusion	C2000 ODOD E7#2	10.4	66.00	10.00	· · 45400		40.00	0.00	470.04	7 0700000 4
929	5/19/2004	zone GP exclusion	S2660 GPCD EZ#2	19.4	-66.96	16.66	154.29	5	19.32	6.09	1/3.61	7.879600244
030	5/19/2004		S2661 GPCD EZ#3	30.3	-137.45	29.66	313.36	8.95	150.32	11.33	. 463 68	14.43853871
		background	bkg052004	7.5	0.47	2.3						1.238103388
		soil standard	soilstd052004	36.9		3.07						1.572005089
		GP exclusion	S2662 GPCD Wall									1.01200000
933	5/20/2004		Spot EZ	17.6	-107.68	17.81	122.23	5.53	26.1	6.85	148.33	8.803601536
,			S2663 GPCD				·····					
934	5/20/2004	Pre EPA	PreEPA#1N	22.4	-2.32	3.71	2.75	1.16	-0.84	1.42	1.91	1.833575742
			S2664 GPCD									
935	5/20/2004	Pre EPA	PreEPA#2S	38.9	-3.1	2.75	1.43	i		1.15	0.96	1.454166428
936	5/21/2004	background	bkg052104	7.5		2.05						1.024158191
937	5/21/2004	soil standard	soilstd052104	36.9	-2.07	5.71	5.52	1.76	2.27	2.29	7.79	2.888200132
			S2665 GPCD (A)									
938	5/21/2004	EPA	EPA#1	37.6	2.63	2.22	2.27	0.68	0.27	0.89	2.54	1.120044642
000	5/04/0004	ED.	S2666 GPCD (A)	07.5	4.00	0.63	: ' 454		4 75		0.00	4 070000400
939	5/21/2004	EPA	EPA#2 S2667 GPCD (A)	37.5	1.03	2.67	1.54	0.83	1.75	1.09	3.29	1.370036496
040	5/21/2004	EDA	EPA#3	34.3	-1.19	2.33	i 3 1.03	0.74	2.6	1.01	3 63	1.252078272
940	3/2 1/2004		S2668 GPCD (A)	. 34.3	-1.19	2.30	1.03	0.77		1.01	3.03	1.232076272
941	5/21/2004	FPA	EPA#4	37.8	0.07	2.48	1.38	0.78	1.13	1.04	2.51	1.3
			S2669 GPCD (A)					<u></u>	'	, , , , , , , , , , , , , ,		
942	5/21/2004	EPA	EPA#5	37.6	2.46	2.28	i 1.29	0.69	1.28	0.93	2.57	1,158015544
			S2670 GPCD Pre					:				
943	5/21/2004	Pre EPA	EPA #3	33.6	-3.05	3.41	2.52	1.1	1.06	1.39	3.58	1.772596965
			S2671 GPCD Pre	 ! !								
944	5/21/2004	Pre EPA	EPA #4	33.5		3.19	1.84	0.97	3.17	1.31	5.01	1.630030675
945	5/24/2004	soil standard	soilstd052404	36.9		2.23			2.18			1.146342008
946	5/24/2004	background	bkg052404	7.5	0.24	2.74	-0.49	0.85	-0.35	1.14	-0.84	1.422005626
			S2672 GPCD (B)					:				
947	5/24/2004	EPA	EPA #1	35.5	-0.86	2.16	2.83	0.68	0.48	0.88	3.31	1.112115102
			S2673 GPCD (B)									_
948	5/24/2004	EPA	EPA #2	35.3	0.69	1.78	0.92	0.57	2.26	0.76	3.18	0.95
040	E/0.4/0004	EDA.	S2674 GPCD (B)		2.0	0.47	, , , ,	0.00	4.05	0.00	3.05	4 450045544
949	5/24/2004	EPA	EPA #3	<u>. 34.2</u>	<u>-2.6</u>	2.17	1.7	0.69	1.35	0.93	3.05	<u>1.158015544</u>

Nutra	nl Gam	ma Spec	Report	Grand :	Pier Pro	ject: Col	umbus	s Drive	Sidew	alk		
	Complete	Report of	Samples Analyz	ed from	May 18, 20	004 - May 2	5, 2004					
Sample	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Ra-226	Total Radium	Total Radium
ID	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
<u>-</u>			S2675 GPCD (B)									-
950	5/24/2004	EPA	EPA #4	33.4	0.15	2.13	1.37	0.67	1.76	0.9	3.13	1.1220071
			S2676 GPCD (B)									
951	5/24/2004 [EPA	EPA #5	34.6	1.73	2.5	1.07	0.78	2.26	1.05	3.33	1.30801376
			S2677 GPCD (C)									
952	5/24/2004 (EPA	EPA #1	31.6	-0.45	2.02	1.58	0.64	0.36	0.85	1.94	1.0640018
			S2678 GPCD (C)						********			
953	5/24/2004	EPA	EPA #2	31.3	-1.15	2.58	0.74	0.81	2.07	1.11:	2.81	1.37411789
			S2679 GPCD (C)									
954	5/24/2004	EPA	EPA #3	31.3	0.32	2.16	0.87	0.67	1.23	0.9	2.1	1.1220071
	·		S2680 GPCD (C)							***************************************		
955	5/24/2004	EPA	EPA #4	32.6	-1.81	1.84	0.23	0.58	1.85	0.81	2.08	0.99624294
			S2681 GPCD (C)									
956	5/24/2004	EPA	EPA #5	32.5	0.65	2.58	2.14	0.79	0.11	1.01	2.25	1.28226362
957	5/24/2004	Pre EPA	S2682 GPCD (D)	32.4	1.48	3.74	1.22	1.15	0.46	1,54	1.68	1.92200416
958	5/25/2004	soil standard	soilstd052504	36.9	3.53	2.1	4.49	0.64	3.06	0.82	7.55	1.0401922
959	5/25/2004	background	bkg052504	7.5	-1.28	1.72	-0.21	0.54	0.54	0.75	0.33	0.92417530
			S2683 GPCD (D)									
960	5/25/2004	EPA	EPA #1	29.3	4.94	2.95	0.73	0.87	0.4	1.17	1.13	1.45801234
			S2684 GPCD (D)	:			:					
961	5/25/2004	EPA	EPA #2	28.5	-0.58	1.62	0.41	0.51	1.33	0.7	1.74	0.86608313
			S2685 GPCD (D)									
962	5/25/2004	EPA	EPA #3	28.9	-2.58	1.96	1.44	0.63	-0.43	0.81	1.01	1.02615788
			S2686 GPCD (D)									
963	5/25/2004	EPA	EPA #4	30.3	-0.32	2.28	0.06	0.73	1.06	0.98	1.12	1.22200654
			S2687 GPCD (D)				:					
964	5/25/2004	EPA	EPA #5	30.8	0.31	1.78	0.79	0.56	0.34	0.74	1.13	0.92800862

Notes:

- 1) The sample indicated as "background" is an empty vial inserted into the instrument in the same manner as a soil sample. The empty vial is used to verify that absence of background influences (positive or negative) on the instrumentation. Acceptable results for the background sample are ± 1.0 pCi/g.
- 2) The sample indicated as "soil standard" is a soil sample in the range of the USEPA cleanup level of 7.1 pCi/g total radium. The soil sample was from one of the initial remedial projects in the Streeterville area. It was originally used as a cross-check between laboratories during the initial projects and is now used as daily consistency sample to show repeatability of the instrumentation.



APPENDIX E

USEPA Contract Laboratory Analytical Data

ANALYTICAL CHEMISTRY LABORATORY Argonne National Laboratory Argonne, IL 60439

Page 1 of 1

REPORT OF ANALYTICAL RESULTS

Sample Material: Soil Submitted By:

L. Jensen, USEPA

Date Received: 5/25/04 Date Reported: 7/12/04

Submitter's Sample No.	ACL Sample No.				Gamma-en	nitting Radion	uclides		
		Reporting	Unit:	pCi/g					
		Ra-	226 <u>±1σ</u>		Ra-: pCi/g	228 <u>±1σ</u>	K pCi/q	40 <u>±1σ</u>	
GPCD(B)	04-0251-01	1.4	0.1		1.4	0.1	9.3	0.2	
GPCD(C)	04-0251-02	1.5	0.1		1.5	0.1	9.9	0.2	
GPCD(D)	04-0251-03	0.6	0.1		0.5	0.1	8.2	0.2	

NOTE: Unused sample material will be returned to the Client. Prepared samples will be discarded one (1) month after the date of this report unless other arrangements are made. When making future inquiries regarding this report, please reference the ACL sample number(s) above. For further information about the results reported here, please call Vivian Sullivan at 630-252-1890.

Analyst(s): V. Sullivan

Reference(s):

CMT Notebook 1837 pg. 129

Copies To: L. Jensen, USEPA

A. Boparai

VSS: 7/12/04

S. Lopykinski

VTS: 7/13/04

D. Bowers

TS frevs S ACL File

Report No.: 04-0251.vss.gam.xls



APPENDIX F

Air Monitoring Results

- a. Perimeter Air Monitoring
- b. Personal Air Monitoring



a. Perimeter Air Monitoring

Area Air Monitoring Summary Sheet - Weekly Effluent Concentration Report

Grand Pier Project - Columbus Drive Sidewalk Chicago, IL

North Monitor Report #1 5/17/04-5/24/04 (High Volume)

	Time Sampled	Effluent Concentration	Concentration x	
Date	(minutes)	in uCi/ml	Sample Min / Day	Comments
5/18/2004	486	0.00E+00	0.00E+00	
5/19/2004	410	7.46E-16	3.06E-13	
5/20/2004	499	0.00E+00	0.00E+00	
5/21/2004	645	0.00E+00	0.00E+00	
5/24/2004	650	0.00E+00	0.00E+00	
	2690	7.46E-16	3.06E-13	

 $C_{avg} = \sum T_{s,i} C_i$

 ΣT_s

Time Weighted Weekly

Effluent Concentration (North) = 1.14E-16 uCi/ml

Eq A.9 NUREG 1400

Percentage of Release Limit of =

2.84%

4E-15uCi/ml

South Monitor

	Time Sampled	Effluent Concentration	Concentration x	
Date	(minutes)	in uCi/ml	Sample Min / Day	Comments
5/18/2004	488	0.00E+00	0.00E+00	
5/19/2004	410	0.00E+00	0.00E+00	
5/20/2004	500	5.56E-16	2.78E-13	
5/21/2004	652	0.00E+00	0.00E+00	
5/24/2004	650	8.18E-16	5.32E-13	
	2700	1.37E-15	8.10E-13	

 $C_{\text{avg}} = \underline{\Sigma T_{\text{s.i.}} C_{\text{i}}}$ ΣT_{s}

Time Weighted Weekly

Effluent Concentration (South) =

3.00E-16 uCi/ml

Eq A.9 NUREG 1400

Percentage of Release Limit of = 4E-15uCi/ml 7.50%

West Monitor ONE

	Time Sampled	Effluent Concentration	Concentration x	
Date	(minutes)	in uCi/ml	Sample Min / Day	Comments
5/18/2004	562	0.00E+00	0.00E+00	
5/19/2004	398	0.00E+00	0.00E+00	
5/20/2004	513	0.00E+00	0.00E+00	
5/21/2004	638	0.00E+00	0.00E+00	
5/24/2004	645	0.00E+00	0.00E+00	
	2756	0.00E+00	0.00E+00	

 $C_{avg} = \frac{\sum T_{s_i} C_i}{\sum T_{s}}$

Time Weighted Weekly

Effluent Concentration (East) =

0.00E+00 uCi/ml

Eq A.9 NUREG 1400

Percentage of Release Limit of = 4E-15uCi/ml

0.00%

West Monitor TWO

	Time Sampled	Effluent Concentration	Concentration x	
Date	(minutes)	in uCi/ml	Sample Min / Day	Comments
5/18/2004	559	0.00E+00	0.00E+00	
5/19/2004	404	1.51E-15	6.10E-13	
5/20/2004	504	0.00E+00	0.00E+00	
5/21/2004	638	4.67E-16	2.98E-13	
5/24/2004	640	4.15E-16	2.66E-13	
	2745	2.39E-15	1.17E-12	

$C_{avg} = \sum T_{s,i} C_{i}$	Time Weighted Weekly	
ΣT_s	Effluent Concentration (West) =	4.28E-16 uCi/ml
Eq A.9 NUREG 1400	Percentage of Release Limit of =	10.69%

NOTE: Average Air Concencentrations were obtained over 5 working days. Excavation started on Tuesday May 18, 2004 and was completed on Monday May 24, 2004.



b. Personal Air Monitoring

Area Air Monitoring Summary Sheet - Staplex High Volume Pumps (Daily Analysis)

Grand Pier Project - Columbus Drive Sidewalk

Chicago, IL

Report No. 1

Monday May 17, 2004 - Monday May 24, 2004

				total time	cubic	sample	_	day after analysis four day analysis							% of Limit		
Sample	date	start	stop	sampled	ft/ min	volume	date	gross	bkg	net	Concentration	date	gross	bkg	net	Concentration	4.00E-15
ID	sampled	time	time	(min)	(CFM)	analyzed (ml)	analyzed	counts	counts	cpm	in uCi/ml	analyzed	counts	counts	cpm	in uCi/ml	uCi/ml
CDN001	5/18/2004	8:09am	4:15pm	486	50	2.41E+07	5/19/2004	38	11	0.9	1.36E-14	5/24/2004	12	13	0	0.00E+00	0.00%
CDS001	5/18/2004	8:12am	4:20pm	488	53	2.56E+07	5/19/2004	44	11	1.1	1.56E-14	5/24/2004	13	13	0	0.00E+00	0.00%
CDW101	5/18/2004	6:56am	4:18pm	562	46	2.56E+07	5/19/2004	58	11	1.56667	2.22E-14	5/24/2004	11	13	0	0.00E+00	0.00%
CDW201	5/18/2004	6:58am	4:17pm	559	49	2.71E+07	5/19/2004	51	11	1.33333	1.79E-14	5/24/2004	13	13	0	0.00E+00	0.00%
CDN002	5/19/2004	6:55am	1:45pm	410	40	1.63E+07	5/20/2004	41	12	0.96667	2.16E-14	5/24/2004	14	13	0.033	7.46E-16	18.64%
CDS002	5/19/2004	6:57am	1:47pm	410	50	2.03E+07	5/20/2004	44	12	1.06667	1.91E-14	5/24/2004	12	13	0	0.00E+00	0.00%
CDW102	5/19/2004	7:02am	1:40pm	398	48	1.89E+07	5/20/2004	47	12	1.16667	2.24E-14	5/24/2004	12	13	0	0.00E+00	0.00%
CDW202	5/19/2004	7:04am	1:48pm	404	40	1.60E+07	5/20/2004	46	12	1.13333	2.57E-14	5/24/2004	15	13	0.067	1.51E-15	37.83%
CDN003	5/20/2004	7:53am	4:12pm	499	47	2.32E+07	5/21/2004	146	12	4.46667	6.99E-14	5/25/2004	11	12	0	0.00E+00	0.00%
CDS003	5/20/2004	7:50am	4:10pm	500	44	2.18E+07	5/21/2004	208	12	6.53333	1.09E-13	5/25/2004	13	12	0.033	5.56E-16	13.90%
CDW103	5/20/2004	7:55am	4:28pm	513	44	2.24E+07	5/21/2004	187	12	5.83333	9.48E-14	5/25/2004	10	12	0	0.00E+00	0.00%
CDW203	5/20/2004	7:57am	4:21pm	504	45	2.25E+07	5/21/2004	176	12	5.46667	8.84E-14	5/25/2004	12	12	0	0.00E+00	0.00%
CDN004	5/21/2004	6:50am	5:35pm	645	48	3.07E+07	5/24/2004	16	13	0.1	1.18E-15	5/26/2004	10	12	0	0.00E+00	0.00%
CDS004	5/21/2004	6:53am	5:45pm	652	51	3.30E+07	5/24/2004	13	13	0	0.00E+00	5/26/2004	12	12	0	0.00E+00	0.00%
CDW104	5/21/2004	7:00am	5:38pm	638	46	2.91E+07	5/24/2004	15	13	0.06667	8.33E-16	5/26/2004	12	12	0	0.00E+00	0.00%
CDW204	5/21/2004	7:02am	5:40pm	638	41	2.59E+07	5/24/2004	11	13	0	0.00E+00	5/26/2004	13	12	0.033	4.67E-16	11.69%
CDN005	5/24/2004	6:50am	5:40pm	650	49	3.16E+07	5/25/2004	21	12	0.3	3.46E-15	5/28/2004	11	11	0	0.00E+00	0.00%
CDS005	5/24/2004	6:53am	5:43pm	650	46	2.96E+07	5/25/2004	24	12	0.4	4.91E-15	5/28/2004	13	11	0.067	8.18E-16	20.45%
CDW105	5/24/2004	6:57am	5:42pm	645	43	2.75E+07	5/25/2004	32	12	0.66667	8.82E-15	5/28/2004	11	11	0	0.00E+00	0.00%
CDW205	5/24/2004	6:58am	5:38pm	640	4 6	2.92E+07	5/25/2004	24	12	0.4	4.98E-15	5/28/2004	12	11	0.033	4.15E-16	10.38%

⁻ No excavation performed on Monday May 17, 2004 - Area Air Monitoring not required

⁻ Excavation completed on Monday May 24 - no further air monitoring required

⁻ Weekly effluent air concentration is calculated on 5 working days, rather than 2 separate weeks (see attached)

Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 1 May 17 - May 24, 2004

Grand Pier Project - Columbus Drive Sidewalk

Chicago, IL

*** All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected Name	Sample ID	PAM#	Flow Rate (lpm)	total time sampled (min)	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
5/18/2004 Glenn Huber	CD1001	002-574	2.5	563	1407500	5/19/2004	11	11	0.00	0.00E+00
5/18/2004 Fabian Rebolla	CD1002	006-234	2.5	568	1420000	5/19/2004	9	11	0.00	0.00E+00
5/20/2004 Glenn Huber	CD1003	002-574	2.5	385	962500	5/21/2004	12	12	0.00	0.00E+00
5/20/2004 Fabian Rebolla	CD1004	006-234	2.5	530	1325000	5/21/2004	16	12	0.13	2.56E-14
5/20/2004 Ricardo Nieblas	CD1005	002-766	2.5	530	1325000	5/21/2004	12	12	0.00	0.00E+00
5/21/2004 Glenn Huber	CD1006	002-766	2.5	652	1630000	5/24/2004	12	13	0.00	0.00E+00
5/21/2004 Fabian Rebolla	CD1007	006-234	2.5	649	1622500	5/24/2004	14	13	0.03	5.23E-15
5/21/2004 Ricardo Nieblas	CD1008	002-574	2.5	590	1475000	5/24/2004	11	13	0.00	0.00E+00
5/24/2004 Tim O'Brien	CD1009	002-574	2.5	595	1487500	5/25/2004	10	12	0.00	0.00E+00
5/24/2004 Fabian Rebolla	CD1010	006-234	2.5	606	1515000	5/25/2004	12	12	0.00	0.00E+00

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis. See attached 4 Day Analysis Form for Occupational Dose Limit Information.

Personal Air Monitoring Summary Sheet (PAM's -4 Day Analysis)

Report No. 1 May 17 - May 24, 2004

Grand Pier Project - Columbus Drive Sidewalk

Chicago, IL

***Note: All samples on this page were analyzed after 4 days to allow for thorium daughter decay

				Flow	total time	Total		Gross	Bkg		Sample	% of
Date				Rate	sampled	Sample	Analysis		Counts	1	Concentration	DAC
Collected	Name	Sample ID	PAM#	(lpm)	(min)	Volume (ml)	Date	(30 min)	(30 min)	CPM	(uCi/ml)	
5/20/2004	Fabian Rebollar	CD1004	006-234	2.5	530	1325000	5/25/2004	12	12	0.00	0.00E+00	0.00%
5/21/2004	Fabian Rebollar	CD1007	006-234	2.5	649	1622500	5/26/2004	11	12	0.00	0.00E+00	0.00%
1												
1												4
ļ												

Occupational Dose Limit for Occupational Radiation Exposure = 5 rem Total Effective Dose Equivalent

2000 DAC-Hours = 5 rem

DAC (Derived Air Concentration) for Th-232 = 5E-13uCi/ml

Administrative Site Limit for Occupational Exposure = 30% Th-232 DAC = 1.5E-13 uCi/ml



APPENDIX G

Equipment Release Survey Results

RADIATION SURVEY FORM

Grandfier - Cohas, Dr

SURVEY REFERENCE #: 00

DATE OF SURVEY: 5 / 20/04

NAME OF SURVEYOR: To O'Bren

SURVEY METER IDENTIFICATION: Mfg: Ludlum

Background Reading: O, O, A mR/hr Model:

Serial: 95056

INSTRUMENT ID: Mfg: Ludium

Background Reading: O. 4 Model: 2200 (scaler) / 43-10 (alpha)

Efficiency: (2) 3 7 % Serial: (2) 3 7 % MDA: dpm

MDA. upin				
Description (attached sketch if needed)	Item	Gross	Gross	dpm per
(Area, equipment, vehicle, materials, etc.)	#	mR/hr	cpm	100 sq. cm
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Drug 3 Acces	2	SK3	0	0
	3	Œ,		/. 7
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	1			

RADIATION SURVEY FORM

SURVEY REFERENCE #: 002	Graper	- Colessor	S. decolk
-------------------------	--------	------------	-----------

DATE OF SURVEY: 5/24/04

NAME OF SURVEYOR: Sten Hales To O'Been

SURVEY METER IDENTIFICATION: Mfg: Ludlum

Background Reading: C. JJ mR/hr Model: ✓

Serial: 95076

INSTRUMENT ID: Mfg: Ludlum

1. 4)

Background Reading: cpm Model: 2200 (scaler) / 43-10 (alpha)

Efficiency: パッケ % Serial: インション O MDA: dpm

Description (attached sketch if needed) (Area, equipment, vehicle, materials, etc.)	Item #	Gross mR/hr	Gross cpm	dpm per 100 sq. cm
For exemper	1	ړي	/	1.6
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	}			0
			-	
Brondensing Backbox Butet				
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0-M-114	J-	٠٠	<u> </u>	0
				



APPENDIX H

Film Badge Results

LANDAUER®

STAN A HUBER CON INC ATTN STAN HUBER 200 N CEDAR ROAD NEW LENOX IL 60451

Landauer, Inc. 2 Science Road Telephone: (708) 755-7000 Glenwood, Illinois 60425-1586 Facsimile: (708) 755-7016

www.landauerinc.com



RADIATION DOSIMETRY REPORT

ACCOUNT NO	SERIES	AHALYTICAL WORK ORDER	REPORT DATE	DOSIMETER RECEIVED	REPORT TIME IN WORK DAYS	PAGE NO
67627	NL1	0415550001	06/09/04	06/03/04	4	1 OF 1

PANT		NAME		TER		NO!			NT (MREM) OWN BELOW			JMULATED IT (MREM)		EAR TO D	ATE NT (MREM)	DOSE E	LIFETIM QUIVALEI		ORDS YEAR	ion M/YY)
PARTICIPANT NUMBER	ID NUMBER	BIRTH DATE	SEX	DOSIMETER	USE	RADIATION QUALITY	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	RECOF FOR YE	INCEPTION DATE (MM/YY)
FOR MO	NITORING	PERIOD:					08/01/	04 - 05	/31/04		2TR 2			2004						
00154 00157				P	CNTRL WHBODY WHBODY		M M	M M	M M	M	M	M M	M	M	M M	М	W.	M	1	10/78 05/04 05/04
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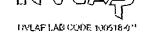
M: MINIMAL REPORTING SERVICE OF 1 MREM

QUALITY CONTROL RELEASE: DRB

1 - PR 8004 - RPT1308- N1

- 15501





Radiation Safety Training Attendance Grand Pier Center - Columbus Drive Sidewalk

Topic: Radiation Safety

Instructor: Glenn Huber

Date: May 17, 2004

Name	Company	Social Security #	Date of Birth	Badge # Issued	Signature
WBALDO JUAREZ	Brounden burg			00154	Worldo Juney.
RICARDA NIEBLAS	BRANDENBURG			00155	RICARDO NIEBLAS
TABIAN ROBOLLAR -	PRANDECE BURG			00156	Though Repular
Lin ROWAN	Brandenburg			00157	Vin Cin
Glen Huser	SAKI			00158	6/2
Ti- OBrun	SAHCT			00159	2012

Note: The Health Physicist reported that two dosimetry badges (Nos. 155 and 156) were reported lost by the personnel to whom they were issued.



APPENDIX I

Shipping Manifests

			6. SHPPER-	NAME AND FACILITY		1 64	PPER LD. NUMBER					8. MANIFEST NUM	RFR		
D-90				Kerr-McGee Chemica P.O. Box 548	I LLC	-	085 9	.,	M 540 AND 540A		OF 1 PAGES	(Use this reproduct on all con			
UNIFORM LOW-LI	EVEL DADIOA	CTIVE		800 Weyrauch Stre		-	COLLECTOR	1	4 541 AND 541A		OF 1 PAGES	0659-02-	0454		
	MANIFEST	CIIVE	1	West Chicago, IL 60		\vdash	PROCESSOR	1	AL INFORMATION		lot Used 1 OF 1 PAGES	000000			
			L				GENERATOR TYPE					CONTACT			
SHPPI	IG PAPER		UT AH PERMIT	F NUMBER: 0110 000 013	SHIPMENT NUMBER 0454	×	Industri	Envirocare of Utah, Inc. Clive Disposal Site				Shipping and Receiving			
1. EMERGENCY TELEPHONE NUMBER	(Include Area Code))	1		L	TEL	LEPHONE NUMBER	Interstate 80, Exit 49				TELEPHONE KUMBER			
In Case of Emergency Call CHEMTR	EC 1-800-424	-93 9300	CONTACT				nclude Ares Code)	Cilve, UT 84029 725 78				(435) 884-0155			
GRIGANIZATION			Mark Krippel 6. CARRIER - Name and Address				630-293-6330 EPA LD. NUMBER	Signy	TYRE - Authorized c	oneigree ectmowle	dging waste receipt	DATE -/-			
Kerr-McGee Chemical LLC 2. IS THIS AN "EXCLUSIVE USE" SHIPMENT?										5/86	104				
X YES	OF PACKAGES		ł.	1416 Dodge Street SHPPING DATE 10 CERTERIATION											
L_INO	DENTIFED ON THE		ļ	Ornsaha, ME. 68179 This la/co cyrlity that the hereith-named materials are properly classified, disco- proper gent disco for transportation according to the applicable regulations of											
4. DOES EPA REGULATED YES	EPA MANFEST N		CONTACT			TE	LEPHONE NUMBER	that the meter	his are classified, par	skaped, and inhelic		andition for transportation and dispersi as describ			
WASTE REQUIRING A X NO MANIFEST ACCOMPANY	1		ŀ	Dale Bray			holude Aren Code) 888-877-7267	STOOLGENOR AL	AND DISCLARATE OF STREET	at in CLM has an	and el. or equivament see	es regularisma.			
THIS SHIPMENT? NA		KA	STONATURE .	Authorized confer actions leaded	rized certier scienowledging waste receipt			AUTHORIZE	ED SIGNATURE		TITLE		DATE		
lf "Yes," provide Mention Number				1	Dete 5/16/2004		mages (midwagnine ou sys)	pers the copy)		Aanager	5/18/2004				
11. U.S. DEPARTMENT OF TRANSPORTATI (Including proper phipping name, busined of	ees, UN (D supples,)	12 DOT LASSEL	13 TRANSPORT	14 PHYSICAL AND			15 DIVIDUAL	<u></u>	TOTAL PACK	AGE ACTIVITY	17 LEASCO	16. TOTAL WEIGHT OR VOLUME	18 DENTFICATION MUNICIPER OF		
and any additional informal	and any additional infermalian) "RADIOACTIME"					RADI	DNUCLDES		14B4	ma	CLASS	(Use appropriate units)	PACKAGE		
Radioactive Material, Low Specific							LSA-1	20.525 tons	BKRU012986						
N.O.S.,Class 7, UN 2912, LSA-1	I.O.S.,Class 7, UN 2912, LSA-1											405 cubic feet			
Questions on Billing Call Steve	Hawks 405-2	03-5689													
Rail Contract UP-C-21537			<u></u>			-			Ì						
STCC Code 4929133 Prepa	ıld			ļ	ļ			·							
DO NOT HUMP			ļ												
PLACARDED															
ROUTE: UP Canal Street, Chicag	go- Clive, UT														
FOR CONSIGNÉE USE ONLY	Contamine Labels, Ma Container Other	aste Description Inade ation or Leakage Defect at Exposure Rates Det arkings, etc. Inadequate integrity Inadequate ona Detected on this St	eded	accompaned by a separate and B: TITLE: Upon a transfer from the Generator and C WASTE MATE applicable governmental laws, ru	ERIALS. Generator repre- complete hazardous vesti- acceptance at the deparati- be vested in Environment ERIAL: Generator represen- tes, regulations and Environ- TON! Generator agrees in imaterial respects to the de-	pto reservition of who by E of URah, inserts and v rocare of U o to indered data suppli	et, along with the approp Environment of Utah, Inc., inc. Henrichts that all deta set Utah, Inc.'s facility loans infly Environme of Utah, led on the (UNIFORM L	mate land-dispos and all appropria forth in this (UNI 6 line lits officers	aal rastriction noffoa an ata regulatory authorite IFORM LOW-LEVEL R , its employaes and ago	d/or certification as one, the to the the Waste LADICACTIVE WAS enter against all losses	required by 40 CFR 288 f Material which conforms to TE MANIPEST) are true a at and Babahy whatsoever it	runterial is a hazardrus wash of Clamerator's representation and connect in all respects are of such losses or hability result ottendents presented by the	herein shall thereupon d in accordance with all to from the fallure of the		

			S. SHAPPER	NAME AND FACILITY		94-95/100	ER LD. NUMBER	1				8. MANIFEST NU		
loss.			1	Kerr-McGee Chemical I P.O. Boar 548	ПC	1	0859	1	TAN 548 AND 548A		F 1 PAGE(S)	(Use this munior on all c	ontrodice pages)	
LINESPECTATION I FUEL DA	DIO 4 CT			100 Waynauch Stree		 			N 541 AND 541A		F 1 PAGE(S)			
UNIFORM LOW-LEVEL RA		VE	ļ	West Chicago, E. 601			COLLECTOR	1	NI 542 AND 542A		ot Used	0659-02-	0455	
WASTE MANIFE	51			Walt Campage, at we			PROCESSOR		AL INFORMATION		of Used			
SHIPPING PAPER			UTAH PERMIT	M MRER	SHIPMENT NUMBER		NERATOR TYPE	S. CONSIGN	EE - Name and Fac Environage of U			CONTACT	and Receiving	
· · · · · · · · · · · · · · · · · · ·		_	1	0110 000 013	9456	1 1		į	Clive Disposal 5			on party and manning		
1. EMERGENCY TELEPHONE NUMBER (Include /					<u> </u>		KONF NUMBER	1	Interstate 80, Ex	rt 49 ,		TELEPHONE NU		
In Case of Emergency Call CHEMTREC 1-800-424 ORCANIZATION	4300		CONTACT	Mark Knopel		(Include Area Code) h 630-293-6330		Citye UT 840		579 edging wants receipt	(436) a	84-0156		
Kert-McGee Chamical LLC			6. CARRIER - Name and Address				LD. MINBER	- SAFE	- ADVIGUES OF		solité mente terrebt	DATE /2/	7	
3 IS THIS AN "EXCLUSIVE USE" SHIPMENT 3. TOTAL			1	Union Pacific Railro			N.A.	1 6	ust.	Ju-		5/26	lay	
NO ROBINTIFIE	EET OUT THE !		1	1416 Dodge Stree Omaha, NE. 6817:		SHIP	TING DATE	7/			16 CERTIFICATION	discribed, pusitaged, to		
MANEST		1	1	Official NE. 0017	•	5/	18/2004	To to proper	condition for trans	grantellan saccordi	ng to the suplicable re-	sulations of the Departm	nent of Transportation	
A. DOES EPA MANI REGULATED WASTE REGUINNO A MANIFERT REGUINNO A MANIFERT	FEST NUMBE	Я	CONTACT	NTACT TELEPHONE NEARBERT (Include Area Code) B88-877-7287 TELEPHONE NEARBERT (Include Area Code) B88-877-7287					packaged, and labels dance with the require	d and are in proper con- ments of 18 OFR Parts :	diffion for 20 and 61, or			
ACCOMPANY THIS	N.A.		SIGNATURE -	Authorized cerrier acknowle	dging weste receipt		Outo	AUTHORIZ	ED SIGNATURE		TITLE		DATE	
If "Yon," provide Menifest Number						5	18/2004		riks (eignsture on Sh	rppers lile copy)		Manager 5/18/2004		
11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIP (Including proper shipping name, helbyrd class, U		12 DOT LABEL	13 TRANSPORT	14 PTIYBICAL AND		NDMC				S ACC ACCUSED	17 LBA/SCO	18, TOTAL WEIGHT	19. EDENTIFICATION NUMBER OF	
number, and any additional information)		ADIOACTIVE"	NOEX	CHEMICAL FORM		RADIONU			I OTAL PACK	TOTAL PACKAGE ACTIVITY		Clare appropriate units		
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Ore tailings and soils and debris containi	ng	NA .	NA.	Solid / Thorium Oxide	Th-232	2, Fla-226,	Th-200, U-m	at	7.27E+01	1.96E+00	NA NA	20.5 tons	BKRU012922	
small amounts of radioactive material wit	,											405 cubic feet		
low radiological hazards.		_												
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DO NOT HUMP				· 	ļ	- · · · · · · · · · · · · · · · · · · ·						ļ. 		
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FOR CONSIGNEE USE ONLY	l		L	20. TERMS AND COND	7100						L			
	ntemination aspected Ex sels, Marion mainer Integ ner	Description inaid or Leakage Dete posure Rates D gs, etc. Inadequate inty inadequate betected on this	ected elected ate	A HAZARIDOUS MA stripment is also accompanies B. TITLE Upo shall thereupon transfer from C: WASTE MA accordance with all applicable	TEPSALS: Generator ray by a separate and comp in ecceptance at the dep- the communities and be ver- TEPIAL: Generator repri- covernments leves, rain CATION: Generator agre- tial to conform in all matter ind to conform in all matter	plete hazardi ossal elte by eted in Eriver resente and v es, resuletion ese to indent vial respecte	oue weath manife. Envirocare of Uta ocare of Utah Inc warrents find all de and Envirocare only Envirocare of a to the data supple	et, along with the fs, Inc., and all a stanget forth in a of Utah, Inc., in Utah, Inc., inc. led on the (UNI	ie appropriate land-d appropriate regulater the (LINSFORM LOW (authy flowne, officine), the employee FORM LOW-LEVEL	uposel renticitan n y authoriter: 15e to r4 EVEL RADIOAC' in and agente again	otice and/or certification The Warte Malerial with TIVE WASTE MANEEST and all touses and Lability	ch conforms to Generator) and true and correct in a wholeover if such looke	66. 1 'e representation herain pl respecte and in e or Eablity results from	
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				5. SHIPPER - NAME AND FACILITY				HIPPER LD. NUMBER	l				8. MANIFEST NUI		
(> m)				Kerr-McGee Chernical LLC P.O. Box 548				0659	•			1 PAGE(S)	(Use this munior on all c	entinuation pages)	
UNIFORM LOV	VJEVEL DA	חוטאכ	TIVE		506 Weyrauch Street	1	\vdash	COLLECTOR	3		PAGE 1 Q		0659-02-	0456	
	TE MANIFES		>11VE		West Chicago, E. 601		-		4	N 542 AND 542A		ot Used	0659-02-	U436	
, was	I E MUNITES	• •		ĺ			\vdash	PROCESSOR GENERATOR TYPE	ADDITION	AL INFORMATION EE - Name and Fac		of Used	CONTACT		
1 .	HPPING PAPER			UTAH PERMI	T NUMBER:	SHIPMENT NUMBER	1 ×	Industrial		Envirocere of U			Shipping and Receiving		
				4	0110 000 013	0456	<u> </u>		1	Cilve Disposal					
EMERGENCY TELEPHONE NUMBER (Include Area Code) in Case of Emergency Call CHEMITREC 1-608-424-9300				CONTACT		L		LEPHONE NUMBER Include Area Code)		Citye, UY 8400		639	TELEPHONE NUI	ABER 84-0155	
ORGANIZATION			Mark Knppel				630-293-6330	SIGNATU.			edging weste receipt	1 77,5			
Kert-McGee Chemical LLC			6. CARRIER	- Name and Address		П	EPA LD. NUMBER	7	1 7	1		DATE /28	hu		
2. IS THE AN "EXCLUSIVE USE" SHE	OF PACKA		"	Union Pacific Rallroad 1416 Dodge Street Omaha, NE. 68179				NA SHIPPING DATE	 '	que o	11/12	19 CEPTECATION	1 3/20/04		
) NO	DENTIFIE		•} ,					5/20/2004	This is to get	By that the herein	named materials	re properly classified,	decribed, purlanged, m	erked, and labeled and	
4. DOES EPA VES	MANUFEST EPA MANU			CONTACT		1-	SLEPHONE NUMBER					paintings of the Departm d and are in proper con-			
4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST WES NO	-	C		Contact	Dale Bray			Include Area Code)					ments of 10 CFR Parts		
ACCOMPANY THIS SHIPMENT?							1	853-877-7267	ļ			,			
SHIPMENT? If "Yes," provide Vanifest Number		N.	A.	SIGNATURE -	- Authorized certer actinosite	dging waste receipt	1	Dute 5/20/2004	AUTHORIZ	ED SKONATURE		TITLE	lanana.	DATE 5/20/2004	
I THE PROPERTY AND ADDRESS OF THE PARTY OF T				Į.			1	5/20/2004	Steve Ha	46 (signature on Sh	oppere file copy)	Silen	Manager 5/20/2004		
11. U.S. DEPARTMENT OF TRANSPO			12	13	14			15				17	18. TOTAL WEIGHT	18. DENTIFICATION	
(including proper shipping num number, and any addition		' "	PRADIOACTIVE"	TRANSPORT	PHYSICAL AND CHEMICAL FORM	1		NONUCLIDES		TOTAL PACK	AGE ACTIVITY	LEA/SCO CLASS	OR VOLUME	NUMBER OF PACKAGE	
										MOq	mCl				
Ore tailings and soils and	debria containir	ng	NA	NA.	Solid / Thorium Oxide	Th-232	, Aa-	226, Th-230, U-na	st .	8 48E+01	2.29E+00	NA.	20.5 tons	BKRU025352	
smail amounts of radioacti	ve material with	,											405 outric test		
low radiological hazards.															
Flat Contract DER-UP-C-21697		十													
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ROUTE: MM-Blue letend, IAIS-Cree	d Junction, UP + C	***		 						<u> </u>		ļ			
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FOR CONSIGNEE USE ONLY	Cor Lab Cor	nteminet oppedec iels, Mer nteiner Ir	ase Description Inaciano Description of Lawrence Description of Europeana Parties Defended in Inaciang	acted etected ete	ehipment is also accompanied B: ITILE: Upon chall thereupon transfer trans C: WASTE MA* accordance with all applicable	TERIALS: Converator ray by a separate and com- n acceptance at the dep- terior and be seen TERIAL: Converator reprint convernmental level rules convernmental level rules and to conform at all residents	plate hi past si sted in secrets a redu see to i	azardous wante minute to by Environare of Uta Environare of Utah tro and warrente that all d dations and Environare of indertrify Environare of specte to the data suppl specte to the data suppl	et, along with the in, inc., and all a c. gate set forth in a of Utah. Inc., a f Utah. Inc., de c led on the (Uhil	n appropriate land-di appropriate regulator his (UNIFOFM LOM apithy license. ficens, as employed FORM LOW-LEVEL	lepoeel rentriction m ny authoritee, title to /4.EVEL RADIOAC se and agains again	ofice and/o certification is the Waste Material who ITVE WASTE MANIFEST of all losses and liability	oh conforme to Generator) are true and correct at a whatboover if such losses	58 1 In representation herein if respects and in i or fability results from	
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D-109			Kerr-McGee Chemical LLC P.O. Box 54F				0659	,	ORM 540 AND \$46A SRM 541 AND \$41A		F 1 PAGE(8)	files this remains on all positiventies pages				
UNIFORM LOW-LE	VEL RADIO	ACTIVE	1	900 Welyrauch Stree	t	-	COLLECTOR	_	XFM 542 AND 542A		F 1 PAGE(8) ot (med	0659-02- 0457				
	MANIFEST		}	West Chicago, E. 801	e s	_	PROCESSOR	_	ONAL INFORMATION		ot Used					
SHEPPIN	O PAPER		UTAK PERMIT		SHIPMENT NUMBER	×	GENERATOR TYP	E S. CONSK	INCE - Name and Fac Envirocare of U	My Address Ish, Inc.		CONTACT Shipping a	nd Receiving			
1. EMERGENCY TELEPHONE MARRIER	Shokede Area Co	ode)	{	0110 000 013	0457	1	LEPHONE NUMBER	ᆏ	Clive Disposal 1 Interstate 80, Ex		20.00	TELEPHONE NUM	BER			
In Case of Emergency Call CHEMITRE			CONTACT				ncarde Area Code)	<u> </u>	Citys, UT 840	و/ <u>ا</u> و	1642	(436) 84				
ORGANIZATION Kert-McGee Chemical LLC			Mark Krypel 6. CARRIER - Name and Address				830-293-8330 EPA LD, NUMBER	9109149	TURE - Authoritied co	onelegion estatore	edding wheate receipt	DATE -/-	7			
2. IS THE AN "EXCLUSIVE USE" SHAPMENT		BER	1	Union Pacific Palitoed					war i	Le		5/28/	64			
X YES	OF PACKAGES IDENTIFIED ON T	nes ,	ł	1418 Dodge Stree Omahs, NE, 66171		l	SHIPPING DATE	This is not	16. CENTRICATION This is no cartify that the hundrenamed materials are properly classified, discribed, packaged, marked, and labeled a							
4. DOES EPA WEA	MANUFEST					<u> </u>	5/20/2004		are in proper condition for it energoristion according to the applicable regulations of the Department of Transportation. This also certifies that the meanints are classified, packaged, and also and are in proper condition for							
A. DOES EPA REGULATED WASTE RECURRING A MANEET ACCOMPANY THE	EPA MANEFEST	NUMBER	CONTACT	Dele Bray			LEPHONE NUMBER Include Area Code) 888-877-7267					ments of 16 CFR Purts 2				
SHIPMENT ! If "Yes," provide Manifest Nambur	1	N.A.	SICNATURE -	IRE - Authorized currier admontedging waste receipt			Date 5/20/2004	1	NZED INCHATURE lambs (signature on Sh	appera the copy)	TITLE She N	te Manager 5/20/2004				
11, U.S. DEPARTMENT OF TRANSPORTATI (Including proper shipping reason, huce number, and any additional info	and classe, UNED	12 DOT LABEL "RADIOACTIVE"	13 TRANSPORT NOEX	14 PHYSICAL AND CHEMICAL FORM			15 DIVIDIJAL IONIJCLIDES	TOTAL PACKAGE ACTIVITY			17 LSA/9CO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	18. DENTIFICATION NUMBER OF PACKAGE			
					l				MEsq	mCl.						
Ore tailings and soils and debri	s containing	NA	NA	Solid / Thorium Oxide	Th-232	Ra-	226, Th-230, U	nai	7.27E+01	1.96E+00	NA.	20.5 tons	BKRU012690			
small amounts of radioactive m	aterial with											405 cubic feet				
low radiological hazarda.																
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		Ĺ	<u> </u>	<u> </u>	<u> </u>					<u> </u>	<u> </u>	<u> </u>				
FOR CONSIGNEE USE ONLY	equate iclad stecied ste	ahignment is also accompanied by a separate and complete heardous waste marking, along with the appropriate fund-deponal respiction netros and/or certification as required by 40 CFR 255.1 8 ITTLE Upon acceptance at the deponal elle by Envirocers of Utuh, Inc., and all appropriate requisitory authorises, title to the Waste Marketal which contours to Central inc. what thereupon turniter from the Generator and be verted in Envirocers of Utuh Inc. (C. WASTE MATERIAL Comparator represents and vice-market and the set forth in the (CNE-CFML CW-LEVEL RADICACTINE WASTE MAYER) are true and connect in all respects and in														
		accordance with all anglectule convertmental laws, rules, reculations and Environme Of the his house and additional control of the high CALTON Commands agrees to middle many formations or Utah, Inc., its officers, the arrothopses and against all losses and lability shadeower it such losses at lability results born to fit file allower than the control of the data supplied on the (LARF-CRM LOW-LEVEL RADIKIAGTIVE WASTE MANUFEST) or it this obtained to most the standards presented by the Department of Transportation or any governmental agency having purediction over such matters.									rer Bebilty reskete trom m elenderde promerind					
																

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	S. SHEPPER -	HAME AND FACILITY	·	SHEPPER LD. NUMBER	8. MANIFEST NUMBER								
(3·90)				Kerr-McGee Chereksell P.O. Box 548	цc	0869		N 548 AND 549A		F 1 PAGE(8) F 1 PAGE(8)	files this reminer on all o	(New Write recombing on all contributions progres)	
UNIFORM LOW-LE	VEL RADIOA	CTIVE	l	900 Weyrauch Stree	4	COLLECTOR	1	1 542 AND 542A		let Used	0659-02-	0458	
WASTE (ANIFEST		{	West Chicago, E. 601	PROCESSOR	ADDITION	L INFORMATION		lot Used	1			
						DENERATOR TYPE	B. CONSIGNE	E - Nume and Faci			CONTACT		
SHETPH	O PAPER		UTAH PERMIT NUMBER: SHIPMENT NUMBER 0110 000 013 8454			X Industrial		Environare of U Clive Disposal 6		7	Shipping a	ind Receiving	
1. EMERGENCY TELEPHONE MUMBER		50)				TELEPHONE NUMBER		Interstate 80, Ex		1++0	TELEPHONE MUS		
In Case of Emergency Cell CHEMITHE ORGANIZATION	CONTACT	Mark Knopel		(Include Area Code)	h	CINO UT 1400			(436) as	84-0185			
Kerr-McClee Cherelcei LLC			4. CARPIER	Name and Address	•	630-293-6390 EPALD, NAMBER N.A	- SAUTA IUI	E · Authorized co	7	edging varie receipt	DATE	2 11	
2. 16 THIS AN "EXCLUSIVE USE" SHIPMENT	3. TOTAL MINESE OF PACKAGES	24	1	Union Pacific Reliec					A.		(p-1	2-07	
X VES	DENTIFIED ON TH		ł	1416 Dodge Stree Omeha, NE, 6617:		5/21/2004	This is to card	ly that the herein		10 CONTRICATION	distribut, perhaped, m		
A. DOES SPA PRECIALATED WASTE, X NO PRECIALATED WASTEST	EN MARKET M.		CONTACT				are in proper of	In its cutify that this hards planning materials are properly plausited, discribed, pochaged, marked, and blocks in prayer confidence for typiforetration according to the applicable requisitions of the Department of Transport sits o cretites that the instriction are classified, packingful, and labeled and are in proper condition for speciation and disposed as demonsted in accordingly with the registerments of 10 GPP Perm 12 or and potentials and deposed as demonsted in accordingly with the registerments of 10 GPP Perm 12 or and the potential of the post of the property of the pr					
ACCOMPANY TIGS SHAPLERITT If "Yes," provide Manifest Number	N	LA.	BIOMATURE -	GHATURE - Authorized center admosfedging seaso receipt				SETANOE O		mue Site k	Aanager	DATE 5/21/200	
	<u> </u>		<u> </u>		···	6/21/2004	Stove Hawler (eignature on Shippers ble copy)			L			
11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including prepar shipp ling marks, hotard classe, UN ID DOT LABEL market, and any additional information) **RADIOACTIVE**			TRANSPORT NDEX					16 TOTAL PACKAGE ACTIVITY		LEASCO CLASS	16. TOTAL WEIGHT OR VOLUME Use appropriate white	19. IDENTIFICATIO NUMBER OF PACKAGE	
	~~~-		<del> </del>		<del> </del>	··		MBq	InCl				
Ore tailings and soils and debris containing NA			NA.	Solid / Thonum Oxide	Th-232	, Fla-226, Th-230, U-na	t .	6 05E+01	1 64E+00	NA.	20 5 tons	BKRU025	
small amounts of radioactive ma	sterial with										405 cubic feat		
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ROUTE: MM-Blue Inland, MM-Grand June	tion, UP - Cibra				-	·		<del>-</del> -					
		_ <del></del>											
FOR CONSIGNEE USE ONLY	Contamina Unexpecte Labela, Ma Container I	nate Description lined sion or Laskage Dete d Exposure Pates De ritings, etc. Inadequa- integrity inadequate one Detected on this 3	equals intend intend inte	ehipment is also accompanied  B TYPLE: Upon what thereuson transfer to mit WASTE MARKET accompanies with all amiliarities	TERIALS: Connector rep by a superate and comp in acceptance at the depo he Canarator say be vani- TERIAL: Consentor repre acceptance and con- actions. Generator agree hal to conform in all maters	nel me by Emercare of Utels ted in Enveroare of Utels inc ments and warrents that all de i remaistore and Enviroare of tel respects to the data suppli sel respects to the data suppli	t, along with the r line, and at ap se set forth in the of Uteh, the to le Uteh, the , so off ed on the (URF)	appropriate land-de propriate regulatory in (LIMFOFIM LOW- 18ty license licere its employees DRM LOW-LEVEL 1	poud restriction in Authorities (the to LEVEL RADIOACT	otoe andin omidoples the Waste Material whi I'ME WASTE MANEFEST at all toness and Eablily	up required by 40 CFR 25 th contourse to Clemerater's ) are true and central to all whateconser if each locase	58, 1 is representation? I respects and in or lightly results	

C-14				S. SHIPPER	HAME AND FACILITY Kerr-McGee Chemical I	SHIPER LO, NUMBER		MI 549 AND 546A		F 1 PAGE(S)	S. MANIFEST MUMBER			
(C-94)					P.O. Box 548	u.c	0859	1	M 549 AND 549A		F 1 PAGE(S)			
UNIFOR	MLOW-LE	VEL RADIO	CTIVE		886 Weyrauch Stree	1	COLLECTOR	-	M 547 AVD 543A		of Chard	0659-02- 0458		
		ANIFEST		1	West Chicago, & 601	<b>15</b>	PROCESSOR		IAL INFORMATION		ot Lland			
ľ				1			OENERATOR TYPE		EX - Human and Fac		o, 0000	CONTACT		
		g PAPER		UTAH PERMI	T MANDER; 0110 000 612	SHEPMENT HARREST 8456	X Industrial	]	Envirocare of U		72686	Shipping and Receiving		
1. EMERGENCY TELEPHONE NUMBER (Include Area Code) In Case of Energynay Call CHENTREC 1-809-434-4388				CONTACT		<u> </u>	TELEPHONE MARKER	1	Interstate 80, E		2600	TELEPHONE NU		
ORGANIZATION	Cal CHEMINE	1-809-434-9388		CONTACT	Mark Knoosi		(Include Area Code) (Include Area Code) (Include Area Code)	- MONATI	Clive, LT \$40	D Ondernos actorisad	udging wants recorded	(440)	M-0155	
Kerr-McClee Chereice				& CARRER	- Name and Address		EPA LD. NUMBER			11		DATE (	104	
2. IS THE AN EXCLUSIVE USE SHIPMENT & TOTAL NUMBER  IX YES OF PACKAGES				1	Union Pacific Railro 1416 Dodge Stree		NA SEPPING DATE	<b>↓</b>			M. CRATIFICATION		197	
<del>``</del>		EDENTIFIED ON T	188		Omeha, NE. 6817		1	This is to co	Wy that the hereb		re property chamber	derbed, perimped, in	wheel, and labeled as	
		MANUFEST		ļ			5/21/2004	and princedon	sondition for trare	and and	og to the applicable rep	ministrate of the Departm	ant of Transportation	
A. DOES EPA PEGULATED WASTE PEGULATED WASTE PEGULATED A AMERIEST ACCOMPANY THE SISTREMENT? W "Yos," provide Manibus	X ***	BYA WAND'EST	<b>YUMBER</b>	CONTACT	5/21/2004 are in proper condition for transporting accounting in the application of transporting accounting in the application of transporting accounting to the application and accounting to the accordance with the relative transporting and disposed as despited in accordance with the relative transporting and disposed as despited in accordance with the relative transporting accounting to the accordance with the relative transporting accordance wi					during with the require	ments of 18 CPR Parts	29 and \$1, or		
ACCOMPANY THE		I	N.A.	BONATURE	Arthorized cerrier actinomic		Deto	AUTHORIZ	ED SIGNATURE		WILE		DATE	
W "Yes," provide Munifes	t Number						5/21/2004		on Sh	oppere life copy)		Aanager 5/21/2004		
11. U.S. DEPARTMENT OF final unity proper ships marries, unit as	ring name, harm	mand classe, UN ID DOT LABEL TRANSPORT PRYSICAL AND				15 PEMOUAL RADIONACLIDES			AGE ACTIMITY	17 18 TOTAL WEIGHT LEANECO OR VOLUME CLASS The metoprism units		18. EDENTIFICATION HAMBER OF PACKAGE		
						L			MBq	mCl				
Ore tailings and so	els and debni	containing	NA	NA .	Solid / Thonum Chede	Th-232	, Ra-226, Th-230, U-n	at	7 27E+01	1.96E+00	NA	20.5 tons	BKRU026280	
smell amounts of r	adoactive nu	terial with										405 cutos feet		
low radiological ha	zarde.													
Plast Contract DER-UP-C-	21607													
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DO NOT HAMP	- <del></del>			-										
ROUTE: MARKE Intend.	Alf-Grand June	State, UP - Cibra		<del>                                     </del>		<del> </del>		<del></del>				<b> </b>	·	
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